TETRA TECH EC, INC.

June 7, 2005
2005-24-0026
No Response Required

Maurice Beaudoin
Resident Engineer
USACE New Bedford Harbor Resident Office
103 Sawyer St.
New Bedford, MA 02746

Subject.: USACE CONTRACT NO. DACW33-94-D-0002
TOTAL ENVIRONMENTAL RESTORATION CONTRACT (TERC)
TASK ORDER No. 0024 – NEW BEDFORD
Final North of Wood St. After Action Report

Dear Mr. Beaudoin:

Tetra Tech, EC, Inc. is pleased to submit the Final North of Wood St. After Action Report along with a 4025 submittal form for your approval. Also included is a consolidated response to comments on the draft versions of the document. This has gone through extensive review and comment by C. Turek of your office. Therefore, according to C. Turek's direction we are distributing this as a final copy to the EPA and DEP as noted on the attached 4025. In addition, according to C. Turek's direction, we are sending a compact disc (CD) with electronic versions of the application files as well as a PDF version of the entire document to Gary Morin, USACE PM and Dave Dickerson, EPA Remedial Project Manager.

If you have any questions, please call (617-457-8259) or E-mail (george.willant@tteci.com) me.

Sincerely,

George M. Willant
Project Manager

cc: G. Morin, USACE*
M. Anderson, USACE
J. MacKay, USACE
D. Dickerson, EPA*
J. Brown, EPA
P. Craffey, DEP
G. Willant
R. Gleason**
TO 24 File 1.1 and 13.7

*Includes electronic version on CD
**Letter only

133 Federal Street, 6th Floor, Boston, MA 02110
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TRANSMITTAL OF SHOP DRAWINGS, EQUIPMENT DATA, MATERIAL SAMPLES, OR MANUFACTURER'S CERTIFICATES OF COMPLIANCE *(Read instructions on reverse side prior to initiating this form)*	DATE 7-Jun-05	TRANSMITTAL NO: 24-WS.21.06-01-001

SECTION I - REQUEST FOR APPROVAL OF THE FOLLOWING ITEMS (This section will be initiated by the Contractor)

TO:	FROM:	CONTRACT NO:	CHECK ONE:
U.S. Army Corps of Engineers 103 Sawyer St. New Bedford, MA 02746 Attention: M. Beaudoin	TetraTech FW, Inc. 133 Federal Street Boston, MA 02110	DACW33-94-D-0002	THIS IS A NEW TRANSMITTAL X THIS IS A RESUBMITTAL OF TRANSMITTAL _____

SPECIFICATION SECTION NO: (Cover only one section with each transmittal)	PROJECT TITLE AND LOCATION:
NA	Davids Island Demolition, New Rochelle, NY

ITEM NO. a.	DESCRIPTION OF ITEM SUBMITTED (Type, size, model number, etc.) b.	MFG. OR CONTR. CAT. CURVE DRAWING OR BROCHURE NO. (See instruction No. 8) c.	NO. OF COPIES d.	CONTRACT REFERENCE DOCUMENT		FOR CONTRACTOR USE CODE g.	VARIATION (See instruction No. 6) h.	FOR CE USE CODE i.
				SPEC. PARA. NO. e.	DRAWING SHEET NO. f.			
1	Final North of Wood St. After Action Report	na	1	na	na	GA	na	

REMARKS

TtFW Document #: 2005-24-0010

Distribution:
M. Beaudoin/C. Turek (1)
G. Morin
M. Anderson
D. Dickerson
J. Brown
P. Craffey
G. Willant
TO 24 File 13.7

I certify that the above submitted items have been reviewed in detail and correct and in strict conformance with the contract drawings and specifications except as otherwise stated.

George M Willant 6/7/05

NAME AND SIGNATURE OF CONTRACTOR

SECTION II - APPROVAL ACTION

ENCLOSURES RETURNED (List by Item No.)	NAME, TITLE AND SIGNATURE OF APPROVING AUTHORITY	DATE

USACE CONTRACT NO. DACW33-94-D-0002
TASK ORDER NO. 024
TOTAL ENVIRONMENTAL RESTORATION CONTRACT

AFTER ACTION REPORT
FOR
NORTH OF WOOD STREET REMEDIATION

NEW BEDFORD HARBOR SUPERFUND SITE
New Bedford, Massachusetts

April 2005

Prepared by

Tetra Tech FW, Inc.
133 Federal Street, 6th Floor
Boston, Massachusetts 02110

USACE CONTRACT NO. DACW33-94-D-0002
TASK ORDER NO. 024
TOTAL ENVIRONMENTAL RESTORATION CONTRACT

AFTER ACTION REPORT
FOR
NORTH OF WOOD STREET REMEDIATION

NEW BEDFORD HARBOR SUPERFUND SITE
OPERABLE UNIT #1
New Bedford, Massachusetts

April 2005

Prepared for

U.S. Army Corps of Engineers
New England District
Concord, Massachusetts

Prepared by

Tetra Tech FW, Inc.
133 Federal Street, 6th Floor
Boston, Massachusetts 02110

Revision	Date	Prepared by	Approved by	Pages Affected
2	4/1/05	D. Beck, P.E. / J. Fusegni	G. Willant	All

TETRA TECH EC, INC.

June 7, 2005
2005-24-0026
No Response Required

Maurice Beaudoin
Resident Engineer
USACE New Bedford Harbor Resident Office
103 Sawyer St.
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TABLE OF CONTENTS

TABLE OF CONTENTS – *Cont'd*

LIST OF FIGURES

LIST OF TABLES

TABLE OF CONTENTS – *Cont'd*

LIST OF APPENDICES

ABBREVIATIONS AND ACRONYMS

CDAs	Compliance Demonstration Areas
CMP	corrugated metal pipe
CSO	Combined Sewer Outfall
cy	cubic yards
DDA	Debris Disposal Area
EPA	U.S. Environmental Protection Agency
FCN	Field Change Notice
FSP	Field Sampling Plan
gpm	gallons per minute
GPS	Global Positioning System
HDPE	high-density polyethylene
Kevric	Kevric Company
MADMF	Massachusetts Division of Marine Fisheries
Maxymillian	Maxymillian Technologies, Inc.
ng/m^3	nanograms per cubic meter
NGVD	National Geodetic Vertical Datum
PCB	polychlorinated biphenyls
POTW	Public Owned Treatment Works
PPE	personal protection equipment
ppm	parts per million
QAPP	Quality Assurance Project Plan
QC	quality control
ROD	Record of Decision
RTK	Real Time Kinematics
SAI	SAI Surveying Company
SSHP	Site Safety and Health Plan
TBG	The Bioengineering Group
TERC	Total Environmental Restoration Contract
TtFW	Tetra Tech FW, Inc.
UCL	Upper Confidence Limit
USACE	U.S. Army Corps of Engineers
WL	North of Wood Street Excavation Subcontractor
WM	North of Wood Street Trucking and Disposal Subcontractor
WN	North of Wood Street Phase II Restoration Subcontractor
WS	North of Wood Street TtFW Support

1.0 INTRODUCTION

Tetra Tech FW, Inc. (TtFW) has prepared this After Action Report (AAR) for the North of Wood Street Remediation pursuant to a request from the U.S. Army Corps of Engineers (USACE) under the Total Environmental Restoration Contract (TERC) No. DACW33-94-D-0002. This AAR is based on the remediation work performed from November 2002 through June 2003 at the North of Wood Street area located at the extreme north of the New Bedford Harbor. The work was performed in accordance with the ***North of Wood Street Remediation Work Plan*** submitted to the USACE on July 23, 2003.

This AAR is a compilation of data and information gathered during the performance of this work. This report generally follows the suggested contents for a Remediation Action Report as defined in the U.S. Environmental Protection Agency (EPA) ***Close Out Procedures for National Priorities List Sites*** (EPA 540-R98-016) dated January 2002.

A total of approximately 880,000 cubic yards (cy) of polychlorinated biphenyls (PCB) contaminated sediments are to be removed from the New Bedford Harbor pursuant to a 1998 Record of Decision (ROD). The North of Wood Street Remediation was the second phase of excavation pursuant to this ROD and involved the removal of about 15,619 cy of PCB contaminated sediments. The first phase was the Early Action Work performed in 2001, which removed about 3,000 cy of PCB contaminated materials from the upper eastern shoreline of the Acushnet River.

The North of Wood Street Remediation involved the removal of about 15,619 cy of PCB contaminated sediments over an area of about 5.4 acres. This work area included the riverbed and shoreline of the Acushnet River from about 1,600 feet north of the Wood Street Bridge to about 250 feet south of the bridge. North of Wood Street Remediation preparation work commenced in November 2002. Prior to remediation, PCB concentrations in the sediments ranged from non-detect to a high reading of 33,000 parts per million (ppm) in the area north of the Wood Street Bridge and 46,000 ppm in one area south of the bridge. Upon removal of the contaminated sediments to the target PCB clean-up levels applicable to each area, the shorelines of the river were restored with imported fill materials, new erosion control measures and plantings. In addition, efforts were made to eradicate and control phragmites.

The main excavation work, about 15,433 cy, was performed from December 2002 through March 2003. Restoration planting was performed in June 2003. Work south the Acushnet Park was suspended to conduct additional archaeological investigations. An additional 186 cy of material was removed from this area and the area was seeded during November/December 2003.

Approximately 2,500 cy (2,606 tons) of excavated vegetated materials were trucked directly off-site for disposal. The remaining materials were transported in leak-proof trucks to the existing Sawyer Street Facilities. At Sawyer Street, the material was screened and then slurry pumped into Cell No. 1 for interim storage. The future TERC II Contractor will desand, dewater, and transport to an off-site disposal facility the sediments temporarily stored in Cell No. 1.

This remedial action work was conducted under Task Order No. 24 of the TERC I Contract. This work was a supplement to that ongoing task order. TtFW provided construction management, procurement, engineering support, and subcontracts for excavation/restoration, trucking and disposal, air sampling, and fencing required for the North of Wood Street Remediation.

This introduction covers general information regarding New Bedford Harbor and the site remedial activities actually performed.

1.1 Site Location and Setting

The North of Wood Street area is located at the northern end of the New Bedford Harbor. Figure 1-1 indicates the locations of the North of Wood Street work area and the existing Sawyer Street Facilities, which is located about 1.5 miles south of Wood Street.

Figure 1-2 is the Work Sequence Plan for the North of Wood Street Remediation. This figure shows the staging areas, location of the North and South Berms, and the six work zones. The earthen berms were constructed to close off the river to allow dewatering of the area to be remediated. This activity entailed the bypassing of the river from above the North Berm to below the South Berm. The remediation work was performed in the dry, with the exception of the pre-excavation for the South Berm, the pre-excavation for the North Berm, and excavation in the Northern Zone.

Figure 1-2 shows the limits of the access agreement for the area adjacent to the west end of the South Berm. There were also access agreements for the Lumberyard and the Titleist Parking Lot, which are not indicated on Figure 1-2.

Excavated materials containing vegetation were trucked off-site for disposal at Model City, New York. Materials not containing vegetation were trucked to the existing Sawyer Street Facilities for temporary storage in Cell No. 1. Refer to Figure 1-3 for the layout of the Sawyer Street Facilities.

1.2 Excavation and Restoration Design

The sampling of the area was first done in 2000. About 88 locations were sampled, with a total of 278 samples tested. Generally the soils were sampled in one-foot increments at each sample location until material below clean-up goals was detected. Some locations were sampled to a depth of four or more feet. The compliance depth (Z-star depth), defined, as the depth below the mudline where the sediment PCB levels are below the specified target clean-up level for a given area, was determined for each of the sample locations. The Z-star depth was based on the results of the sample analysis for each sample location and the clean-up requirements in that particular area. The Z-star depths for the area north of the Bridge were based on 88 sample locations and were used as input to a geostatistical modeling analysis to provide Z-star depths on 10-foot grid spacing. Z-star depths for the area south of the Bridge were part of the geostatistical analysis done for the Upper Harbor and were on 25-foot grid spacing. For details of the geostatistical analysis refer to the TtFW Data Interpretation Report dated June 2002. The results of this geostatistical analysis are shown in Figure E.3 in Appendix E.

In spring 2002, SAI Surveying Company (SAI) surveyors performed a detailed topographic survey of the North of Wood Street area using total station survey equipment. This survey was used to generate the existing surface that was input into MicroStation CAD program. The Z-star depths were then input to MicroStation to develop the theoretical excavation surface. To provide workable excavation drawings, the theoretical excavation surface contours were manually adjusted and smoothed. In some areas with significant geographic changes, such as the ditch at the Truro Street Combined Sewer Outfall (CSO), some adjustments were made based on the review of specific samples in the vicinity of the area in question. The Final Excavation Drawings were completed in June 2002 and issued for construction on September 18, 2002. The issued Excavation Drawings are included in Appendix E.1. Subsequent to the issuance of the Excavation Drawings, FCN-24-037 was issued to address the EPA re-defined limits of excavation. Based on the EPA revised excavation limits TtFW provided the Excavation Subcontractor with an Excel spreadsheet with the updated design excavation elevations for all grids. A GIS plot of the updated excavation depths is included in Appendix E.3.

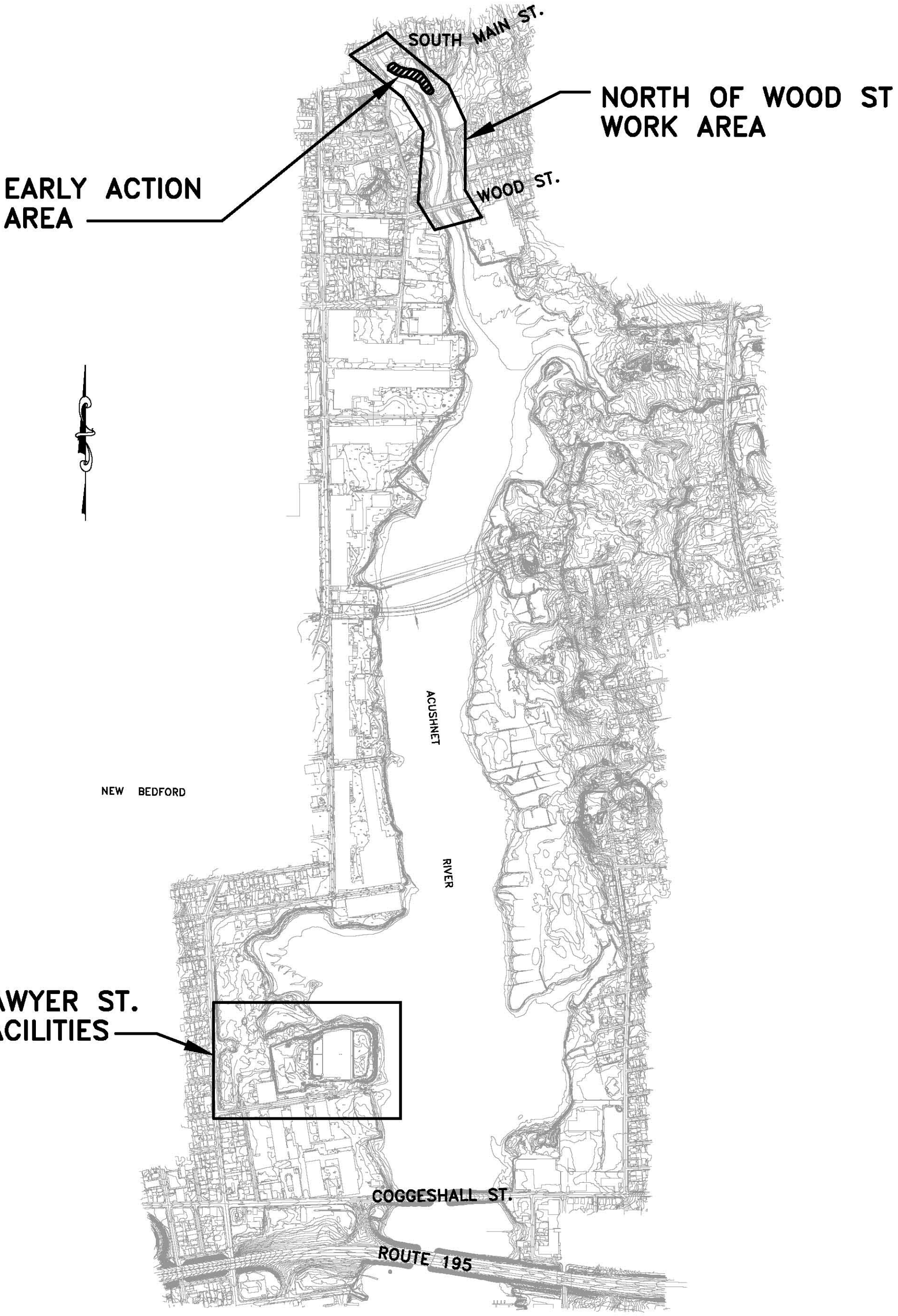

FIGURE 1-1

NEW BEDFORD HARBOR SUPERFUND SITE
NEW BEDFORD, MASSACHUSETTS

SITE LOCATION MAP

FOSTER WHEELER ENVIRONMENTAL CORPORATION
TERC PROGRAM

CADDFILE: 5197NB15h.DWG

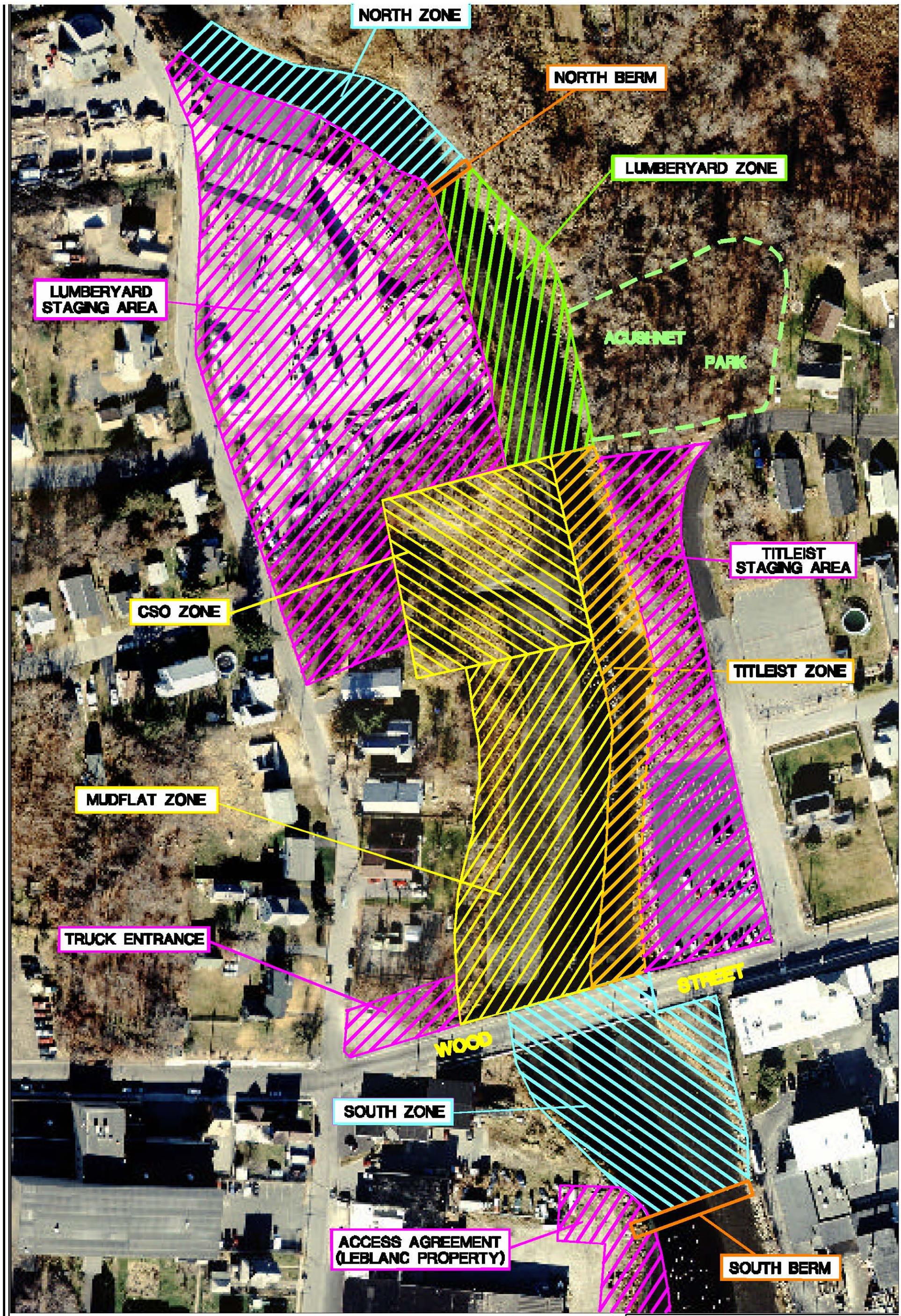

FIGURE 1-2

NEW BEDFORD HARBOR SUPERFUND SITE
NEW BEDFORD, MASSACHUSETTS

CONSTRUCTION SEQUENCE AND STAGING AREAS PLAN

SCALE: AS SHOWN

CAD FILE: WS2204_Fig004.DWG

FIGURE 1-3

NEW BEDFORD HARBOR SUPERFUND SITE
NEW BEDFORD, MASSACHUSETTS

SAWYER STREET FACILITIES

SCALE: AS SHOWN

CAD FILE: 0290_A_VISUAL_18.DWG

The restoration work was broken down into Phases I and II. Phase I Restoration Work included the supply and placement of imported fill material, stone riprap and erosion control measures, as well as the placement of conservation seed mix adjacent to the high marsh. (Phase II Restoration Work involved the planting of low and high marsh areas as well as the bordering trees and shrubs.)

The Restoration Drawings were prepared based on the Final Excavation Drawings. Final Restoration Drawings were prepared by The Bioengineering Group (TBG). The drawings for the Phase I Restoration work (this included final grades of backfilled areas and erosion control measures) were issued for construction on September 27, 2002. The Phase II Restoration drawings, which provide the planting design, were issued on April 3, 2003. The Restoration Drawings as issued are included in Appendix G.

1.3 Work Approach

All work performed between the North and South Berms was done in the dry. The North Berm was constructed with earthen materials to block river flows from entering the work area. Pumps were installed at the North Berm to pump river flow to the south side of the South Berm. The South Berm was constructed with earthen materials to block the tidal influence coming up from the harbor.

The North Berm construction included a 4-foot x 8-foot pre-cast concrete box culvert with a steel weir plate system. The weir plate gate system was used to control upstream flooding should a storm event occur that was too large for the bypass pumps to handle.

The South Berm was constructed with a 6-foot deep by 8-foot wide pre-cast concrete U-channel with stop-logs. This channel and stop-log system allowed fish to swim through the river prior to November 1st and after March 1st. In a storm event, which resulted in river flows too great to be handled by the bypass pumping system, the stop-logs could have been removed to prevent flooding above the South Berm.

At the South Berm, three pumps were installed to provide 12,000 gallons per minute (gpm) pump capacity to dewater the area between the two berms and to remove seepage water from the Work Area.

Originally three 12-inch pumps were installed at the North Berm capable of pumping 18,000 gpm. Due to the frequency of rainfall events in December 2002, the pumping capacity was increased to a flow rate of 40,000 gpm per FCN-24-044. The original three 12-inch pumps were replaced with two 20-inch Flygt submersible pumps. The bypass pumps were connected to two 24-inch diameter bypass pipes.

Staging areas were setup at the Lumberyard, South Berm, and Titleist Parking Lot. Each staging area had a station for the decontamination of trucks leaving the Site. A haul road was constructed from the Lumberyard Staging area over the Truro Street CSO ditch and on the vegetated area of the Mudflat Zone to a truck entrance just north of the Wood Street Bridge.

The entire excavation area was divided into the following six remediation zones with indicated planned excavation quantities:

- **North Zone**: Area north of the North Berm requiring removal of about 150 cy of material.
- **Lumberyard Zone**: Area of river south of the North Berm to the CSO area requiring removal of about 1,000 cy of material.
- **CSO Zone**: Area on the western shoreline at the CSO area requiring removal of about 2,200 cy of material. This was also the area of highest reported PCB concentrations north of the Wood Street Bridge.

- **Titleist Zone**: Area on the eastern shoreline from the Acushnet Riverside Park south to just north of the bridge and extending about 60 feet out from the shoreline into the riverbed requiring removal of about 1,100 cy of material.
- **Mudflat Zone**: Area on the western shoreline behind the four houses requiring removal of about 3,200 cy of material.
- **South Zone**: Area between the Wood Street Bridge and the South Berm requiring removal of about 2,000 cy of material. This included removal of material from under the bridge.

The excavation work generally proceeded from north to south. The first excavation was performed in the area to the north of the North Berm prior to the installation of the berms. The footprints of the South Berm and North Berm were excavated in the wet. All other excavation work between the two berms was performed in the dry.

Once a work area was excavated to the required Z-star depths, the TtFW sampling crew took confirmation samples in the excavated area. Samples were tested for PCB concentrations at the on-site laboratory located at the Sawyer Street Facilities. Fourteen sample locations had concentrations above clean-up goals, resulting in the decision to remove an additional 700 cy of PCB contaminated material.

Another additional 595 cy of material were removed from the Mudflat and CSO areas to eliminate phragmites roots.

Work involved with the removal of contaminated materials included the following:

- Construction and removal of the South Berm including an open pre-cast concrete U-channel with stop logs, pre-cast concrete planks to bridge the channel and dewatering pumps.
- Construction and removal of the North Berm including the installation and removal of a pre-cast concrete box culvert with steel weir plate.
- Installation, operation and removal of bypass pumping from the North Berm to south of the South Berm.
- Construction, operation and removal of the Lumberyard Staging Area.
- Construction, operation and removal of the Titleist Parking Lot Staging Area.
- Construction and removal of haul roads in the Work Area.
- Excavation of about 15,619 cy of material.
- Transportation and disposal of 2,606 tons (about 2,500 cy) of sediments with vegetated materials to the Model City for disposal (refer to Appendix A.1 for the manifesting of this material).
- Transportation of about 13,000 cy of excavated materials to the Sawyer Street Facilities for processing and temporary storage in Cell No. 1, refer to Appendix A.2 for the manifesting of this material.
- Collection and analysis of 323 samples from 263 locations to refine the limits of excavation and to determine whether excavation achieved clean-up goals.
- Collection and analysis of 57 air samples from 9 stations to document ambient air quality during construction. Six stations located near the North of Wood Street construction and three located at the Sawyer Street Facilities.

The excavated quantity of 15,619 cy is summarized as follows:

Quantity Based on the Excavation Drawings:	9,965 cy
Quantity Increase Due to EPA Adjusted Limits:	1,904 cy
Excavation under Bridge, not indicated on Drawings:	700 cy
Addition Excavation due to Confirmation Sampling:	700 cy
Excavation for Phragmites Roots:	595 cy
Over Excavation:	1,569 cy
November/December 2003 Excavation:	186 cy
Total Excavated Materials	15,619 cy

The quantity of 9,965 cy was the total estimated volume of material to be removed above and below the Wood Street Bridge. This volume was calculated using In-Roads software. The existing surface elevations were based on the SAI April 2002 topographic survey. The design-excavated elevations were per the TtFW Excavation Drawings issued in September 2002, which are contained in Appendix E.1.

An increase of 1,904 cy was due to EPA adjustments to the excavation limits in October 2002. These changes were documented in FCN-24-037 approved on November 25, 2002.

The design excavation drawings did not indicate any excavation under the Wood Street Bridge. Excavation under the Bridge was field directed by USACE and TtFW personnel. Since GPS surveying equipment did not operate under the Bridge, final survey of excavated depths under the Bridge were not obtained. The estimated 700 cy excavated from under the Bridge was based on field observations.

Once a work area was excavated to the required Z-star depths, the TtFW sampling crew took confirmation samples in the excavated area. Samples were tested for PCB concentrations at the on-site laboratory located at the Sawyer Street Facilities. Fourteen sample locations had concentrations above clean-up goals; resulting in the decision to remove an additional 700 cy of PCB contaminated material. This was an average of about 50 cy of additional material removal at each of the designated sample locations.

Another additional 595 cy of material were removed from the Mudflat and CSO areas to eliminate phragmite rhizomes and roots. This required additional two to three feet of excavation below the design excavation depths. USACE and TtFW field personnel visually verified removal of the rhizomes and roots.

Over excavation was the amount of material removed from below the design cut depth. The over excavation was about 11% of the total design volume to be removed, which over the total area of about 5.4 acres is an average over of only about 2 inches. Refer to the Figure F.2 in Appendix F that shows the under and over cuts for each grid.

Estimated volume of material removed from each CDA is summarized in Table 1-1.

Table 1-1
Summary of CDA Excavated Volumes

CDA	Estimated Design Volume (cy)	Estimated Actual Excavated Volume (cy)
1	848	2,019
2	1,649	2,502
3	221	878
4	49	203
5	129	168
6	7,069	9,849
Total	9,965	15,619

1.4 Fish Run Considerations

Due to a number of factors, of which consideration of the alewife/blueback herring played a significant role, the decision was made to conduct the actual dewatering and remedial excavation of sediments from within the Acushnet River North of Wood Street after November 1, 2002. This date was based on discussions with the Massachusetts Division of Marine Fisheries (MADMF) to minimize potential impacts to the fishery both during the summer months as well as the fall out-migration. However, preliminary work to set the stage for excavation occurred in October 2002.

The river could not be closed off during the fall fish run, which is from September 15 to October 31 or the spring fish run which is from March 1 to June 15. Work in the water during a fish run required use of silt curtains to prevent silt from getting into the main river flow.

1.5 Confirmatory Sampling

Details of the confirmation sampling are presented in the North of Wood Street Confirmation Sampling Approach Report (Transmittal No. 17.21.99-01) transmitted to USACE on July 15, 2002 and the North of Wood Street Confirmation Sampling Report transmitted to the USACE in August 2004 (Transmittal No. WS.02.06-02-003).

The Confirmation Sampling Plan divided the entire area into six Compliance Demonstration Areas (CDAs). These areas are shown in Appendix E.2, also shown on this drawing are the proposed sample locations.

The clean-up goals are summarized as follows:

- The residential area behind the four houses required the top one-foot of material to have 95% UCL PCB concentration less than 1 ppm, and the underlying material to have an average PCB concentration less than 50 ppm.
- Beachcombing areas required that the top one-foot of material have a 95% UCL PCB concentration less than 25 ppm with the underlying material to average less than 50 ppm.
- The sub-tidal riverbed clean-up goal was an average PCB concentration less than 10 ppm.

In the residential and beachcombing areas, it was decided to remove a minimum of one foot of existing material and then place at least one foot of imported clean material in those areas to achieve the final cleanup goals. This minimum of one foot of clean imported fill also allowed for the proper soil type required for the plantings.

Final results of the confirmation sampling for each CDA are summarized in Table 1-2. See Figure 1 in Appendix C for location of final confirmation samples for each CDA.

Table 1-2
Summary of Compliance Demonstration Areas and Confirmation Sampling Results for North of Wood Street

CDA	Location	Area (acres)	Clean-up Goals (ppm) (Top 12"/ Below 12")	No. of Sample Locations	Average PCB Conc. at Surface Prior to Fill Placement (ppm)	Comments
1	Western Shoreline South of CSO	0.5	1/50 25/50	32	6.0	This area was covered with at least one foot of clean material following excavation.
2	Western Shoreline North of CSO	0.6	25/50	48	4.4	This area was covered with at least one foot of clean material following excavation.
3	Eastern Shoreline North of Titleist Parking Lot	0.2	25/50	19	5.5	This area was covered with at least one foot of clean material following excavation.
4	Eastern Shoreline South of Wood Street Bridge	0.2	25/50	4	0.25	This area was covered with at least one foot of clean material following excavation.
5	Eastern Shoreline at Titleist Parking Lot	0.1	50	0	-	No work was performed in this area due to the existing rock rip-rap on the shoreline.
6	Riverbed from North to South	3.8	10	61	7.0	Sampling under the berms and access road is excluded.
			Total	164		

1.6 Air Sampling

Conducting construction during the winter months provided the benefit of frozen ground, colder temperatures reduced PCB emissions and relatively low ambient PCB concentrations.

Additional air sampling stations were set up at the North Wood Street Site. Table 1-3 shows the coordinates of all the air stations that were used to monitor this work. Refer to Figure 1 in Appendix B for the layout of these air stations with respect to the work areas.

Table 1-3
Air Sampling Station Locations

Air Sampling Station Location	Coordinates	
	Northing	Easting
AQ Site 02: East Side of CDF	2,701,424	814,856
AQ Site 03: North Side of CDF	2,701,667	814,551
AQ Site 06: West Side of CDF	2,701,359	814,346
AQ Site 28: 20 Main Street	2,709,541	815,303
AQ Site 31: Acushnet Park	2,708,870	815,541
AQ Site 32: Former Lumberyard	2,709,263	814,971
AQ Site 33: Wood Street Bridge	2,708,060	815,366
AQ Site 34: Titleist Parking Lot	2,708,628	815,596
AQ Site 37: South of CSO	2,708,675	815,311

Three existing air-sampling stations at the Sawyer Street Facility were used to document PCB air emission concentrations during the handling of the material at the DDA and Cell No. 1.

Results of the air sampling are summarized in Section 3.11.2 and Appendix B. Individual sampling events were previously submitted via Transmittal No. 24-WS.02.03-01-001 through No.24-WS.02.03-10-001.

1.7 Key Subcontractors

TtFW provided the excavation design and construction management for the work.

The Bioengineering Group (TBG) provided the detail design of the restoration work, and assisted in the oversight of the plantings in the Phase II Restoration work.

Maxymillian Technologies, Inc. (Maxymillian) performed the following work as a subcontractor to TtFW:

- Established staging areas at the Lumberyard, Titleist Parking Lot and South Berm;
- Installation of North and South Berms with pumping systems;
- Excavation of contaminated materials;
- Transportation of non-vegetated materials to the Debris Disposal Area (DDA) at Sawyer Street;
- Processing of materials at DDA and placement in Cell No. 1 for future desanding, dewatering and off-site disposal; and
- Phase I Restoration work which included purchase, transport and placement of backfill materials, rip-rap and erosion control measures.

Off-site disposal of 2,606 tons (about 2,500 cy) of vegetated contaminated materials was performed by the Kevric Company (Kevric) as a subcontractor to TtFW.

Kevric also performed air sampling as a subcontractor to TtFW.

TtFW collected the confirmation samples. The samples were tested at an on-site laboratory setup at Sawyer Street and operated by ESN North Atlantic as subcontractor to TtFW.

SAI performed the pre-excavation topographical survey as a subcontractor to TtFW in April 2002.

Great Meadow Farms installed Phase II Restoration Plantings in June 2003 as a subcontractor to TtFW.

2.0 OPERABLE UNIT BACKGROUND

2.1 Site Description

The New Bedford Harbor Superfund Site (the Site), located in Bristol County, Massachusetts, extends from the shallow northern reaches of the Acushnet River estuary south through the commercial harbor of New Bedford and into adjacent areas of Buzzards Bay. Industrial and urban development surrounding the harbor has resulted in sediments becoming contaminated with many pollutants, notably PCBs and heavy metals, with PCB contaminant gradients generally decreasing from north to south. From the 1940s into the 1970s, two electrical capacitor manufacturing facilities, one located near the northern boundary of the site and one located just south of the New Bedford Harbor hurricane barrier, discharged PCB-wastes either directly into the harbor or indirectly via discharges to the City's sewerage system.

Refer to the 1998 ROD for a detail description of background issues.

2.2 Description of the Selected Remedy

The major components of the 1998 remedy include the following:

- Approximately 880,000 cy of sediment contaminated with PCBs will be removed. In the upper harbor north of Coggeshall Street, sediments above 10 ppm PCBs will be removed, while in the lower harbor and in saltmarshes, sediments above 50 ppm will be removed.
- In certain shoreline areas prone to beachcombing, sediments between the high and low tide levels will be removed if above 25 ppm PCBs. In areas where homes directly abut the harbor and where contact with sediment is expected, sediments between the high and low tide levels will be removed if above 1 ppm PCBs.
- Institutional controls, including seafood advisories, no-fishing signs, and educational campaigns will be implemented to minimize ingestion of the local PCB-contaminated seafood until PCBs in seafood reach safe levels. State fishing restriction will also be in effect until such time as the Commonwealth deems it appropriate to amend them.
- EPA directed that the cleanup of the area north of the Wood Street Bridge be accelerated, due to the residential and recreational shoreline areas which were found to contain very high levels of PCBs.

3.0 CONSTRUCTION ACTIVITIES

3.1 General Sequence of Work

The general sequence of the work was as follows.

1. Maxymillian mobilized to the site during the month of October 2002. During this time the main objectives were to establish the site trailers and the main staging area at the Lumberyard area. The main site trailer, crew trailer and decontamination trailer were positioned at the site to support work activities. Prior to the trailers being positioned, the site was cleared, grubbed and then graded to accommodate the facilities. Refer to Photos WS102102, WS102103, WS102401, and WS102402 in Photo Log (Appendix L).

2. Established five air-sampling stations.

3. Established Staging Area at the Lumberyard in November 2002, this included the installation of electrical power for the trailers and pumps at the North Berm. Refer to Photo WS110501 in Photo Log (Appendix L).

4. Setup at Area C (Sawyer Street) to receive non-vegetated excavated materials. This work included grading the DDA and removing some fencing to allow for the placement of materials into Cell No. 1. Refer to Photo WS111903 in Photo Log (Appendix L).

5. Excavated the North Zone (about 150 cy). Since there was only a small amount of materials to be removed north of the North Berm, this work was performed in the wet prior to the construction of the North Berm. Refer to Photos WS110503, WS110504, WS110505, and WS110506 in Photo Log (Appendix L).

6. Constructed the North Berm in December 2002. This work included removing existing material, taking 3 confirmation samples, installing the pre-cast concrete culvert and installing the earthen berm material. Refer to Photos WS111901, WS111902, WS112001, and WS112101 in Photo Log (Appendix L).

7. Set up staging area for the South Berm on the west shore in December 2002. This work included installing the electrical power drop, installation of temporary fencing and preparing a work area with crushed stone. The electrical drop ran underground around the perimeter of the property and a transformer was set. The work area was covered with crushed stone and included a truck decontamination station. Refer to Photos WS110701, WS110702, and WS111503 in Photo Log (Appendix L).

8. The South Berm was constructed in December 2002. This work included the following:
   - Removal of about 400 cy of PCB contaminated sediments from the berm footprint and trucking that material to Area C for placement in Cell No. 1. Refer to Photo WS120202 in Photo Log (Appendix L);
   - Taking 5 confirmation samples. Refer to Photo WS112103 in Photo Log (Appendix L);
   - Placing about 400 cy of gravel fill material. Refer to Photo WS121101 in Photo Log (Appendix L);
   - Installing pre-cast concrete open channel with timber stop logs. Refer to Photo WS120301 in Photo Log (Appendix L);
   - Placing rip-rap on berm face. Refer to Photos WS121201 and WS121301 in Photo Log (Appendix L); and
   - Install dewatering pumps with sump pit. Refer to Photos WS120201 and WS122410 in Photo Log (Appendix L).

9. Additional temporary fencing was installed on the eastern side of the river at the Titleist Parking Lot and north to the Acushnet Riverside Park. Refer to Photo WS103003 in Photo Log (Appendix L).

10. A staging area was established at the Titleist Parking Lot.

11. The area north of the Titleist Parking Lot was cleared and grubbed.

12. The west shoreline just to the north of the Bridge was cleared, graded and fenced with a gate to create the Haul Road Entrance. Refer to Photo WS103005 in Photo Log (Appendix L).

13. Two 24-inch high-density polyethylene (HDPE) pipes were installed from the North Berm bypass pumps to about 200 feet below the South Berm. These pipes were located along the eastern shoreline. Refer to Photos WS120202, WS120203, WS1904, and WS1905 in Photo Log (Appendix L).

14. The area to the south of Lumberyard towards CSO ditch was cleared and grubbed. Refer to Photo WS122303 in Photo Log (Appendix L).

15. A dirt haul road with a 48-inch diameter corrugated metal pipe (CMP) was installed at the CSO ditch. Refer to Photos WS1601 and WS1602 in Photo Log (Appendix L).

16. Excavation started in Lumberyard Zone south of the North Berm and progressed to the CSO Zone. This work was staged from the Lumberyard. Refer to Photo WS122303 in Photo Log (Appendix L).

17. Completed installation of the two 24-inch diameter pipes for bypass pumping, installed the North Berm pumps and started the bypass pumping operations. Refer to Photo WS122802 in Photo Log (Appendix L). Once normal stream flow was pumped from the North Berm through the two bypass pipes, the stop logs at the South Berm were installed. The South Berm pumps were used to remove the water from the area between the two berms. High/low level switches were used to control the pumps. Refer to Photo WS122410 in Photo Log (Appendix L).

18. The excavation work in the Lumberyard Zone was completed on January 17, 2003. Refer to Photo WS1806 in Photo Log (Appendix L).

19. Excavated Titleist Zone from south of the Acushnet Riverside Park to the Wood Street Bridge. This area included the eastern shoreline and about 60 feet out from the shoreline into the riverbed. This material was removed through the Lumberyard Staging Area. Refer to Photos WS12106, WS2303, WS2502, and WS21003 in Photo Log (Appendix L).

20. Confirmation sampling was performed from November 2002 to February 2003. Refer to Photo WS11503 in Photo Log (Appendix L).

21. Excavation in the CSO Zone was performed from December 11, 2002 to January 24, 2003. Once the excavation in this area was completed, the rip-rap for the CSO Ditch was placed. Refer to Photos WS1805 and WS11305 in Photo Log (Appendix L).

22. Material processing operations at the DDA commenced in January 2003. Refer to Photos WS11303, WS12107, WS12903, WS22006, and WS22008 in Photo Log (Appendix L).

23. Excavation in the Mudflat Zone on the western shoreline south of the CSO ditch to the Wood Street Bridge was performed from January 15, 2003 to February 20, 2003. Refer to Photo WS11502 in Photo Log (Appendix L). The haul road was constructed with a Dura-Base Composite Mat System to support excavation work in this area. Refer to Photo WS123002 in

Photo Log (Appendix L). No off-site disposal trucks entered from the bridge entrance; they backed up from the Lumberyard decontamination pad. Additional excavation was required to remove phragmites roots. This involved removing about 595 cy of rooted materials. The western shoreline accounted for the vast majority of the vegetated material off-site disposal. Refer to Photo WS12102 in Photo Log (Appendix L).

24. Excavated the Southern Zone from January 28, 2003 to February 20, 2003. This included excavation under the bridge. Material removed from this area was trucked through the South Berm Staging Area. Refer to Photos WS12304, WS12901, and WS2301 in Photo Log (Appendix L).

25. Fourteen (14) confirmation-sampling locations required additional material removal. Approximately 700 cy of additional material was removed based on the sampling results. Final confirmation sampling for the main Work Area was completed on February 24, 2003. Final confirmation sampling of the small area excavated in the cultural resource zone north of the Titleist Parking Lot was completed in December 2003.

    There is an area at the intersection of the South Berm and the western shoreline that was not successfully remediated. Final PCB confirmatory sample result in this area was 660 ppm. It is currently covered by the base of the former South Berm and will be remediated during future dredging operations. (Refer to Appendix C, Figure 1).

26. Install restoration measures on the western shoreline at the Lumberyard was performed from February 17, 2003 to March 26, 2003. Refer to Photo WS30105 in Photo Log (Appendix L).

27. Restoration measures at the CSO ditch were installed from March 1, 2003 to March 19, 2003. Refer to Photo WS30104 in Photo Log (Appendix L).

28. Installed restoration measures on the western shoreline to the south of the CSO ditch from February 27, 2003 to March 15, 2003. Refer to Photos WS31104 and WS31105 in Photo Log (Appendix L).

29. Installed restoration measures on the eastern shoreline from March 12, 2003 to March 20, 2003. Refer to Photos WS31203, WS31204, and WS31207 in Photo Log (Appendix L).

30. Installed restoration measures on the western shoreline below the bridge to the South Berm on March 14, 2003. Refer to Photo WS31503 in Photo Log (Appendix L).

31. Ceased bypass pumping on March 15, 2003 and opened up the river to normal flow conditions. This extension from March 1st was Granted by MA Division Marine Fisheries because the unusually cold winter produced lower than normal water temperatures, thus delaying the spring fish migration upstream. Refer to Photo WS31801 in Photo Log (Appendix L).

32. Removed the bypass pumps at the North Berm in March 2003. Refer to Photo WS31801 in Photo Log (Appendix L).

33. Completed restoration measures at the CSO Ditch on March 19, 2003. Refer to Photos WS31804, WS31805, WS31904, WS31905, and WS31907 in Photo Log (Appendix L).

34. Removed the North Berm and restored the banks as required. Refer to Photo WS32401 in Photo Log (Appendix L).

35. Removed the South Berm pumps in April 2003.

36. Bypass piping was removed in April 2003. Refer to Photos WS32005 and WS32007 in Photo Log (Appendix L).

37. DDA processing operations were completed in April 2003. Refer to Photos WS42902 and WS42903 in Photo Log (Appendix L).

38. Removed the staging area from the Titleist Parking Lot and graded the parking lot.

39. Put in the Phase II plantings during June 2003. Refer to Photos WS61102, WS61103, and WS61104 in Photo Log (Appendix L).

40. The South Berm was removed in July 2003. Refer to Photos WS62401, WS62403, WS62404, and WS62405 in Photo Log (Appendix L).

41. Demobilized from the Lumberyard Staging Area in July 2003.

42. Remobilize to the area south of the Acushnet Park in November 2003 once final clearance had received from SHPO.

43. Completed excavation, backfill, remediation, restoration and demobilized from the area south of Acushnet Park in December 2003. Refer to Photos WS121201, WS121202, WS121203, and WS121204 in Photo Log (Appendix L).

44. Re-paved Titleist Parking Lot in December 2003.

3.2 Staging Areas

Refer to Figure 1-2 for location and layout of the staging areas. A description of each staging area is presented in the following sections.

3.2.1 Titleist Staging Area

The Titleist Parking Lot was set up for the use as a staging area and a load out area for materials excavated from the eastern shoreline. A decontamination station was installed in the middle of the parking lot but had only limited used. The use of the this area was minimized due to the excavation process which took advantage of frozen conditions, allowing the excavators to be situated in the riverbed and cast material to the western shoreline for management and loading operations.

The parking area was used significantly during the restoration portion of the scope of work. Phase I Restoration materials were delivered to the Titleist Parking lot for placement in the area north of the Parking Lot.

3.2.2 Lumberyard Staging Area

The already cleared Lumberyard was the main staging area for both the excavation of materials and the Phase I Restoration Work north of the Wood Street Bridge. Electrical power was installed at the site for the trailers, the North Berm pumps, and the truck and personnel decontamination areas.

A decontamination trailer was set up at the southeastern location of the Lumberyard. A wheel wash and tracking pad was established west of the decontamination trailer. Wastewater from the decontamination stations was collected in a storage tank and then transported to the Sawyer Street Facilities for discharge into Cell No. 1. From the wheel wash heading south, a haul road with Dura-Base mats was joined to meet the haul road from the bridge area. The majority of materials excavated north of the bridge were handled

through the Lumberyard. Likewise the Lumberyard was the key staging area for Phase I Restoration materials.

3.2.3 West Haul Road Entrance (North of the Wood Street Bridge)

The truck entrance was located on the western shoreline just to the north of the Wood Street Bridge. This entrance provided trucks access to the Western Haul Road. The majority of material excavated from north of the bridge was transported to the Lumberyard Staging Area.

3.2.4 South Berm Staging Area on Bayside Builders Property

A staging area was established on the western end of the South Berm. Electrical power was installed for the operation of the South Berm pumps. This area was used for the construction and removal of the South Berm. All material excavated from under the bridge and to the south of the Bridge was transported through this staging area.

3.3 South Berm Construction

A Kobelco 912 excavator with a long reach arm and a 1-cy hydraulic environmental bucket was used to remove contaminated materials from the footprint of the South Berm. The excavator was equipped with a Real Time Kinematics (RTK) Global Positioning System (GPS) unit to position the dredge bucket to the required horizontal lines and vertical grades. The excavated materials were loaded directly into trucks at the South Berm area and then transported to Sawyer Street for placement into Cell No. 1 for temporary storage.

The length of the berm was about 150 feet and the base width was about 50 feet. An electrical power supply at the western end of the berm was installed for the dewatering pumps. The pumps were capable of pumping at a maximum of 12,000 gpm. The top of the berm was built to Elevation +4.0 feet NGVD. A sump pit was established at the north side of the U-channel that contained 6-dewatering pumps. The sump pit was excavated and then lined with stone to prevent sediment from clogging the pumps. The discharge pipes of the pumps were directed into the U-channel down stream of the stop logs.

The invert of the channel was at Elevation –3.0 feet NGVD. The tops of the channel walls were set at Elevation +3.0 feet NGVD. A modification to the U-channel was made to gain more free board required to handle astronomical high tides. This modification resulted in the addition of timbers attached to the U-channels top. This additional height would also be able to accept an additional stop log timber. Therefore, the top of the modified channel was at Elevation +3.8 feet NGVD. This increase of height prevented water from extreme high tides from flowing over the channel stop logs into the Work Area and hampering excavation work.

The South Berm was constructed from the west to the east in coordination with the remediation of the berm footprint. At the eastern edge of the berm, cementitous flowable fill was placed in the existing shoreline rip-rap to prevent seepage through the stone rip-rap. A temporary cofferdam was constructed around the area where the pre-cast concrete channel units were to be set. A hydraulic truck crane was used to set the channel units and pre-cast concrete slabs.

3.4 North Berm Construction

The area under the footprint of the North Berm was remediated prior to the construction of that berm. A temporary cofferdam was constructed to enable the installation of the pre-cast concrete box culvert. A crane was used to place the culvert sections. Bedding of 1½-inch stone was placed to provide a level

pad for the installation of the pre-cast concrete culvert. The box culvert was set at the desired invert Elevation –1.5 feet NGVD. Once the box culvert sections were set, the earthen berm was constructed.

The North Berm was built to Elevation +3.5 feet NGVD. The height of the berm was designed to ensure that the residents north of the berm would not be subject to flooding due to high river flows.

3.5 Bypass Pumping

A pump intake cage was placed at the north side of the berm to house the bypass pumps. The cage prevented debris from getting into the pump intakes.

Maxymillian installed three 12-inch Flygt pumps at the North Berm with a maximum pumping capacity of 18,000 gpm. The lines from the three pumps were connected to a manifold, which discharged into two 24-inch diameter HDPE pipes. The discharge pipes were routed along the eastern shoreline and over the top of the South Berm to discharge approximately 300 feet south of the South Berm. There was about 1,500 linear feet of pipe for each discharge line.

At the western bank close to the North Berm a pump control panel was installed to operate the pumps and annunciate problems in the pump system to Maxymillian personnel. Electrical power was routed to the pumps in buried conduits through the Lumberyard.

Due to high river flow rates in December 2002, the three 12-inch pumps at the North Berm were replaced with two 20-inch pumps providing a total pumping capacity of 40,000 gpm. The electrical power was upgraded to meet the power demands of the larger pumps.

3.6 Excavation Work

Per USACE direction, the Excavation Subcontractor was provided with data files that had cut depths on 10-foot grids for the area north of the Wood Street Bridge and 25-foot grids for the area south of the bridge. TtFW using the cut depths from the Excavation Drawings determined these cut depths and adjusted them to account for the EPA directed changes to the excavation limits. The data files had the north and east coordinates along with the required cut depth for each of the grids. Using the topographical survey data provided from the April 2002 SAI survey, the Excavation Subcontractor calculated the cut elevation for each grid by subtracting the grid cut depth from the existing elevation of at the center of each grid. This x, y and z data was used to control the excavation.

Design excavation was based on the Z-star depths as shown in Appendix E. Estimated volume removed from each CDA is summarized in Table 1-1. Deviations from the design excavation depths are shown in Appendix F. Refer to Appendix L for photographs of the work.

3.6.1 North Zone

The majority of the material removed from this area was gravelly. The removal of material was performed with a conventional excavator and manual labor to obtain the required excavation depths. In some areas, such as the base of the concrete wall, laborers used hand shovels to perform this work.

The excavation of the Northern Zone was performed at low tide utilizing silt curtains upstream and downstream of the delineated remediation zones. A Cat 320 excavator with a grading bucket was used.

3.6.2 Lumberyard Zone

This is the area on the western shoreline south of the North Berm to the CSO area including the riverbed and the eastern shoreline across from the Lumberyard. A significant portion of the material removed from this area was along the Lumberyard shoreline where PCB contaminated material had been covered over with imported fill material.

Work in this area was performed after the bypass and dewatering pumping systems were fully operational.

Due to the rocky conditions of this area, the intent was to roll the rocks from the area and remove sediment between the rocks. No rocks larger than six inches were removed from the Site. Rocks larger than six inches were power washed and then re-installed at the areas that required rip-rap rocks. Rocks on the eastern shoreline near the Acushnet Riverside Park were also cleaned and redeposited in their same location.

3.6.3 Titleist Zone

The Titleist Zone is the area along the eastern shoreline south of the Acushnet Riverside Park to the Wood Street Bridge. This area extended along the eastern shoreline and about 60 feet to the west. The Titleist Parking Lot was used as a limited staging area to remove a portion of the contaminated sediments. The depth of PCB contamination in this area ranged from 1 to 2 feet deep. The clearing and preparation of this area began in late November 2002. The main excavation in this area was performed in January and February 2003.

During pre-design site characterization activities, an archeology find was discovered that required additional cultural resources investigation prior to receiving approval to excavate. Additional sampling investigation was performed to define the extent of the contamination through the cultural resource area. The sampling crew extracted samples in one-foot increments to a depth of 3 feet below grade.

Subsequent to further cultural resource investigations and clearance from SHPO, the final remediation and restoration work in this effected area began on November 17, 2003 and was completed on December 12, 2003. The Titleist Parking Lot was resurfaced with asphalt on December 15 and 17, 2003.

3.6.4 CSO Zone

The CSO Zone is the area on the western shoreline south of the Lumberyard, which includes the ditch from the Truro Street CSO. The eastern boundary abuts the Titleist Zone and the southern boundary abuts the Mudflat Zone.

In the CSO Zone a portion of the ditch was filled with imported gravel material to create a haul road from the Lumberyard to the Mudflat Zone. At the confluence of the ditch and river the roadway was constructed with a 48-inch CMP to allow for possible CSO discharges. The roadway joined the two areas together to better facilitate the work efforts. This roadway and culvert were removed as part of Phase I Restoration work.

Excavation depths in the CSO Zone ranged from two to four feet. This area contained contaminated materials with the highest PCB levels identified in the North of Wood Street area.

Excavation for the CSO Zone originally did not include the removal of the phragmites. The USACE directed the eradication of the phragmites' rhizomes. The directive was to remove the rhizome layer to a

depth with no visible roots left behind in the newly excavation zone. Removal of this material increased the total quantity of material shipped to Model City. The increased removed quantity also resulted in an increase of imported material required for Phase I Restoration.

3.6.5 Mudflat Zone

The Mudflat Zone is the area on the western shoreline south of the CSO to the Wood Street Bridge. Its eastern boundary abuts the Titleist Zone. The excavation depths in this area range from one foot along the western shoreline behind the four houses along River Road to about 3.5 feet in the mudflats, and 2 feet in the streambed and along the boundary with the Titleist Zone. The maximum width for this area was about 200 feet. Trucks entered just north of the Wood Street Bridge and traveled along a haul road constructed on the undisturbed marsh area. The haul road was constructed by placing filter fabric on the marsh area, placement of gravel to produce a smooth surface and then covered with the Dura-Base mats. The West Haul Road extended from the Wood Street Bridge, ran along the marsh area and tied into the haul road from the Lumberyard.

A modified Cat 245 BL excavator with a long reach arm and increased counterweight was mobilized to the job site. This excavator was able to excavate 80 feet away with a 2 cubic yard-grading bucket. This equipment was positioned along the West Haul. Material was excavated from the riverbed and stockpiled along the western shoreline. As much water as possible was allowed to decant from the excavated sediments prior to loading into the trucks for off-site disposal.

The majority of material trucked off-site exited through the Lumberyard Staging Area. Only a few loads destined for the DDA exited from the West Haul Road Entrance. Each area was equipped with a wheel wash decontamination station. All vegetated material removed was directly loaded into trucks for off-site disposal to Model City, New York.

Once the excavation was completed on both sides of the haul road, the haul road was removed and material under the footprint of the road was excavated. Removal of the haul road started near the Bridge and progressed north towards the Lumberyard. Additional excavation was performed at the direction of the USACE to remove phragmite rhizomes from this zone.

3.6.6 South Zone

The South Zone is the area under the Wood Street Bridge and south to the South Berm. This area was excavated last.

Starting at the north side of the bridge and working south, a small excavator worked under the arches of the bridge and fed material to a larger excavator located south of the bridge. This small excavator traveled under the arches and excavated from the north to the south. Once excavation from one arch was completed, the small excavator was moved to the next arch. During this phase the larger excavator managed the material by feeding the material to a larger long reach excavator that loaded the trucks from the shoreline near the South Berm.

The material south of the bridge was removed with excavators that directly loaded the excavated materials into trucks that exited the Site through the South Berm Staging Area.

3.7 Trucking to Sawyer Street

Excavated non-vegetated material was stockpiled to allow for passive dewatering prior to loading into watertight trucks and containers for transport to the DDA at Sawyer Street. A preliminary water tightness

test was conducted on each truck and/or container that was used for hauling the materials to ensure that they were watertight. The trucks and containers were visually inspected daily for the first week, then intermittent inspections of the trucks were conducted throughout the job. No leakage from the trucks was ever noted.

3.8 Phase I Restoration

Phase I restoration work followed immediately after completion of the excavation work. The intent of Phase I restoration was to establish finish grade and stabilize disturbed intertidal areas as necessary in preparation for planting during Phase II. Phase I restoration work consisted of placing imported fill materials to the grades shown on the Restoration Drawings. Erosion control measures as shown on the Restoration Drawings were installed as part of the Phase I Restoration. Phase I Restoration work for each of the areas is described in the following paragraphs.

3.8.1 West Shoreline – Lumberyard

The restoration at the Lumberyard shoreline included the following:

- Reconfiguration of existing rock at the toe of the slope;
- Backfill the area to within 12-inch of finish grade with acceptable fill;
- Placement of coir fascine roll at the toe of the slope;
- Placement and finish grading of the manufactured wetlands soil in the restored areas;
- Placed 6 inches of topsoil and planted upland seed mix above Elevation +3.5 feet NGVD; and
- Installation of erosion control blankets.

3.8.2 CSO Area

The restoration work at the CSO Area included the following:

- Placement of fill material to the final grades as shown on the restoration drawings;
- Placement of rock protection in the bottom of the ditch and on the toe of slopes up to about Elevation +0.0 feet NGVD;
- Installation of back filled materials within one foot of finished grade;
- Placement of coir fascine at the top of the stone toe;
- Placement of manufactured wetlands soils;
- Finish grading;
- Placement of 6 inches of topsoil and planting of upland seed mix above Elevation +3.5 feet NGVD; and
- Installation of erosion control blankets.

3.8.3 Eastern Shoreline

Imported rip-rap was placed at the toe of slope along the eastern shoreline. Once the stone toe was installed, backfill material was placed. Coir fascine materials were installed on top of the backfill, then areas were backfilled to finish grade to complete the restoration work in this area.

3.8.4 Mudflat Area North of Bridge

This area was backfilled with imported clean material to final grades shown on the Restoration Drawings. Efforts were taken to ensure that the CDA No. 1 was covered with a minimum thickness of one-foot of clean imported fill material to meet the clean-up goal of the top one foot of material having PCB

concentrations of less than 1 ppm. Coir fascine materials were installed on top of the backfill, then areas were backfilled to finish grade with manufactured wetland material to complete the restoration work in this area.

3.9 Phase II Restoration

Phase II restoration for the North of Wood Street area consisted of procurement and installation of wetland and upland plantings, and herbicide treatment of one area of phragmites on the eastern shoreline. Great Meadow Farm was the subcontractor responsible for supplying and installing plant material and for herbicide treatment of phragmites.

TBG assisted TtFW during placement of upland plantings. Phase II restoration was in accordance with the Restoration Planting Design, North of Wood Street, New Bedford Harbor Superfund Site, Issued for Construction, final version dated July 2003; and New Bedford Harbor Restoration Specifications, North of Wood Street, dated December 2, 2002.

Plantings were installed in June/July 2003. Herbicide treatment of the phragmites was applied in the Spring of 2003 prior to the plantings and repeated in the fall of 2003.

3.9.1 Wetland Planting

Approximately 0.98 acres of intertidal wetlands, consisting of 0.63 acres of low marsh and 0.35 acres of high marsh, were planted with salt marsh plants between June 9 and June 20, 2003. Wetland plant material consisted of plugs delivered in flats. Low marsh was planted with 19,400 plugs of smooth cordgrass (*Spartina alterniflora*) placed by hand at 18-inch spacing, except where spacing was reduced to 12 inches in the 3-foot-wide zone immediately adjacent to the coir fascine that defined the lower limit of planting. High marsh was planted with 7,128 plugs of salt meadow cordgrass (*Spartina patens*) and 7,400 plugs of salt grass (*Distichlis spicata*) interspersed evenly and placed by hand at 18-inch spacing.

3.9.2 Upland Plantings

Upland plantings, consisting of 61 trees and shrubs and 20-potted ground cover plants, were installed along the western shoreline and within the Acushnet Riverside Park on the eastern shoreline. General placement of plants was as shown on the Restoration Planting Design, with final placement determined by a landscape designer from TBG. Upland plantings were installed between July 1 and July 3, 2003.

Temporary fencing and netting was installed to protect the new plants from the geese that use the mudflat areas as feeding grounds.

3.9.3 Phragmites Control

The Phase II restoration plan included aggressive treatment of one area of dense phragmites along the eastern shoreline between the Titleist Parking Lot and River View Park. This area was treated with the herbicide Rodeo on June 17, 2003, and again in early October 2003. The success of the aggressive control measures will be evaluated during post-restoration monitoring.

3.10 Debris Disposal Area (DDA) Operations

All the excavated non-vegetative materials were transported to the Sawyer Street Facility and deposited at the DDA. Once the materials were deposited at the DDA, Maxymillian pushed all the material to the northern DDA area into a stockpile for processing. A slurry processing operation was outfitted in the

northern area of the DDA to remove the oversize material and deposit the screened sediment into Cell No. 1. A grizzly screening unit separated out oversized materials of 2 inches and greater, which were stockpiled for future placement into the DDA.

The minus 2-inch material was conveyed to a mixing tank which added water from Cell No. 1 to the sediments. This homogenized mixture was then pumped through an 8-inch HDPE pipeline into Cell No. 1. The pipe running from the slurry pump to Cell No. 1 was buoyant and therefore was able to be moved through the cell to evenly distribute the sediments.

As the screened sediments filled Cell No. 1, the excess water from Cell No. 1 was allowed to overflow into Cell No. 2. TtFW discharged the excess water from Cell No. 2 to the city sewer after the water was tested to ensure that discharged water meet the requirements of the Public Owned Treatment Works (POTW) discharge permit. Approximately one million gallons of excess water was discharged to the POTW.

3.11 Sampling

Sampling and analysis were conducted in accordance with the Project Field Sampling Plan (FSP) and Quality Assurance Project Plan (QAPP).

3.11.1 Confirmatory Sampling

Progress and confirmatory samples were collected to refine the limits of excavation and to determine whether excavation achieved clean-up goals. Sampling, analysis and associated QA/QC measures were conducted in accordance with the project FSP (Transmittal No. 17.01.04-005), QAPP (Transmittal No. 17.01.03-03-004) and reference the *Confirmatory Sampling Approach Report*, July 2002 (Transmittal No. 17.21.99-01). Sample IDs and results, QA/QC results and the calculation of average PCB concentrations for each CDA are detailed in the *North of Wood Street Confirmatory Sampling Report*, August 2004 (Transmittal No. WS.02.06-02-003).

A total of 323 samples from 263 locations in 5 CDAs were collected and analyzed for this effort. Results from progress samples were used to refine the horizontal limits of excavation. Results from the majority of confirmatory sampling locations indicated that excavation achieved clean-up goals, although some locations required additional excavation. Final confirmatory sample results indicated that remediation achieved clean-up goals for each of the 5 CDAs (see Table 1-1).

One Sample, C0006-070, at the west end of the South Berm had a PCB reading of 660 ppm and will be remediated in future dredging operations. All other progress samples with high PCB readings were remediated to meet the clean-up goals for each CDA.

3.11.2 Air Sampling

Ambient air sampling and analysis was conducted to measure PCB concentrations in air during remediation activities. Sampling and analysis was conducted in accordance with the project FSP and QAPP and data were evaluated relative to exposure budget curves in accordance with the *Development of Air Action Levels for the Protection of the Public*. Sample results are summarized in Appendix B. Individual sampling events were previously submitted via Transmittal No. 24-WS.02.03-01-001 through No. 24-WS.02.03-10-001.

Samples were collected from 6 stations located around the North of Wood Street construction. Three stations were used around the Sawyer Street CDF and DDA where material was managed and ultimately

placed into Cell No. 1 for temporary storage. Refer to Table 1-2 for location of the air sampling stations. A total of 57 samples were collected and analyzed in support of construction activities. A summary of the results is provided in Appendix B.

Air data were validated, plotted against the exposure curve and transmitted to USACE routinely as they were available during construction. The final cumulative exposure results for each station are also included in Appendix B. In summary, working in the winter months effectively maintained low ambient air concentrations near construction activities. The highest concentration in the North of Wood Street area was 16 nanograms per cubic meter (ng/m^3) with average concentrations ranging from 2 to 6 ng/m^3, less than typical background concentrations during warmer months. Higher concentrations were detected at the Sawyer Street locations where material was being handled, processed, placed in the DDA, and then slurried into Cell No. 1. These readings were obtained in the spring, where the exposed mudflats were expected to produce higher PCB emissions than from the limited (remediated) area North of Wood Street. The highest concentration detected at the Sawyer Street stations was 160 ng/m^3 with averages ranging from 12 to 64 ng/m^3. Exposures from air concentrations did not approach the budget curves at the stations sampled during this remediation activity.

4.0 CHRONOLOGY OF EVENTS

Table 4-1 provides a chronology of events related to the North of Wood Street Remediation work. This chronology of events is a summary of key activities as indicated in the Project Schedule that is contained in Appendix H. Refer to Appendix L for representative photographs of the work.

Table 4-1
Chronology

Date	Event
January 2002	• USACE issues RFP-078 to provide procurement and planning for Remedial Action North of Wood Street.
March 2002	• TtFW transmits Draft Work Plan Modification No. 08 in Response to USACE RFP No. 78.
April 2002	• SAI performs topographical survey for North of Wood Street Work.
May 2002	• USACE issues RFP-085 for Excavation/Restoration North of Wood Street.
June 2002	• TtFW issues draft Excavation Drawings. • TBG issues draft Phase I Restoration Drawings. • TtFW submits draft North of Wood Street Remediation Work Plan.
July 23, 2002	• TtFW submitted North of Wood Street Remediation Work Plan.
August 2002	• Obtained bids for Excavation and Phase I Restoration Work. • TtFW issues Construction Quality Control Plan (CQCP) for North of Wood Street. • TtFW issued Purchase Order for berm pre-cast concrete units.
September 2002	• USACE issues Modification for North of Wood Street Remediation. • TtFW issues SAP for North of Wood Street. • Awarded Excavation Subcontract to Maxymillian. • TtFW issued stamped Excavation Drawings. • TBG issued stamped Phase I Restoration. • TtFW issues Air Monitoring Subcontract.
October 2002	• TtFW issues Air Monitoring Plan. • TtFW issues subcontract for on-site laboratory. • Personnel mobilized to site for remediation work. • Primary staging areas prepared. • Commenced clearing and grubbing of the work sites. • EPA issued changes to excavation limits.
November 2002	• Started air sampling for the site. • Started and finished the Northern Zone excavation area. • Started confirmatory sampling. • Performed additional exploratory sampling in the river and along the western side of the river as directed by EPA at the CSO and mudflat areas. • Started construction of the North Berm by setting the pre-cast concrete box culvert in the riverbed. • Started trucking materials to the DDA at Sawyer Street. • Started building the bypass pumping system by fabricating the bypass pipes.
December 2002	• Constructed South Berm complete with pre-cast concrete U-channel. • Pumped flowable concrete fill in shoreline rip-rap at eastern end of the South Berm. • Installation and activation of three 6,000 gpm pumps. • Due to excessive river flows the three 6,000 gpm pumps were dismantled and removed. • Installed upgraded electrical power for larger pumps at the North Berm. • Upgraded North Berm bypass pumping system to 40,000 gpm. • Completed installation of electrical power at the North Berm. • Started installing Dura-Base mats for road access in Mudflat Zone.

Table 4-1
Chronology – *Cont'd*

Date	Event
January 2003	• Completed installation of electrical power at the South Berm. • Activated the bypass and dewatering pumping systems. • Blocked the river at the North and South Berms and initiated the bypass pumping and dewatering systems. • Commenced excavation work in the Lumberyard Zone. • Setup and activated the slurry operations in the DDA. • Excavated Titleist Zone.
February 2003	• Excavated Titleist Zone. • Excavated the Mudflat Zone. • Approved overtime for restoration work to meet deadline of March 1st. • Received permission from MADMF to extend river closure to March 15,th pending water temperatures staying below 4°C and there being no visible fish migration. • Started Phase I Restoration work at the Lumberyard area. • Completed all the excavation work in the river. • Completed analysis of confirmation samples.
March 2003	• Cut timber piles under the arches of the Wood Street Bridge. • Completed the placement of imported materials for Phase I Restoration. • Monitored the water temperature at the South Berm and Coggeshall Bridge during the first 15 days of the month to comply with MADMF stipulations for the fish run. • On March 15th removed stop logs from the South Berm channel for the fish run. • Removed the North Berm. • TtFW award subcontract for Phase II Restoration.
April 2003	• Finished the upland Phase I Restoration, and some of the low and high marsh areas. • Completed the slurry operation for placing materials into Cell No. 1. • TBG issued Restoration Planting Design Drawings.
May 2003	• Complete Phase I Restoration work. • Performed Phase IIB Cultural Investigation. • Removed and relocated fencing in specified areas. • Reprocessed material through the slurry operation in the DDA. • Graded the DDA and installed a sump for dewatering.
June 2003	• Started Phase II restoration – wetland plantings. • Completed Phase II Cultural Investigation. • Removed the South Berm and U-channel. • Completed demobilization from the Site.
July 2003	• TBG issues final Restoration Planting Design Drawings. • Completed Phase II Restoration Plantings.
October 2003	• Second herbicide treatment of phragmites.
November 2003	• USACE issued RFP No. 95 that included FCNs for North of Wood Street. • Remediation work at cultural resources zone north of Titleist Parking Lot was started.
December 2003	• Final remediation work at cultural resources zone north of Titleist Parking Lot was completed and confirmed to meet required clean-up goals. • Titleist Parking Lot was paved.
March 2004	• Final Inspection Performed.

5.0 PERFORMANCE STANDARDS AND CONSTRUCTION QUALITY CONTROL

5.1 Surveying Control

Maxymillian and TtFW performed a quality control (QC) check of surveying equipment prior to the start of remediation work. Both TtFW and Maxymillian used Trimble 4700 RTK GPS surveying equipment. TtFW used the RTK GPS system with a base unit located at the Sawyer Street Facility. The Maxymillian RTK GPS system had a mobile base unit, which was located at the Lumberyard for the duration of the work. The accuracy of the two systems was 0.005 feet for vertical control and 0.003 feet for the horizontal control. The points used for the QC check were benchmarks established by SAI a professional land-surveying firm from Massachusetts.

A calibration check was performed prior to start of remediation work everyday that the survey equipment was used. During the workday, a survey equipment calibration was performed if there was any deviation from any previous recorded stored information. Throughout the job there were no discrepancies of the equipment or instrumentation.

The pre-excavation survey was performed by SAI with total station survey equipment, while the excavated grades and final grades of the placed imported materials were obtained from Maxymillian using its RTK GPS survey equipment. The final excavated grades for the footprint of the South Berm were based on Maxymillian data from the excavator mounted GPS positioning equipment. Originally the final excavated grades and final as-built grades were to have been obtained by SAI using total station survey method, but this approach was changed by a USACE directed FCN.

5.2 Health and Safety

Health and Safety activities were completed in accordance with the contract specifications and the Site Safety and Health Plan (SSHP). All site personnel were given a site orientation and were required to acknowledge by signature that they read and understood the SSHP before beginning work. Personnel completed the required pre-screening requirements for the entrance and exit physicals. All work was performed in Level D Personal Protection Equipment (PPE).

This work was performed without any reportable safety incidences.

5.3 Confirmation Sampling Quality Control

Quality control of the on-site laboratory testing confirmation samples was performed in accordance with the TtFW FSP and QAPP. Refer to the TtFW North of Wood Street Confirmation Sampling Report for information about the correlation study conducted between the on-site and off-site laboratories.

6.0 PRE-FINAL AND FINAL INSPECTIONS

On April 2, 2003 TtFW conducted a Pre-Final Punch List Inspection with Maxymillian for the work performed under the Excavation Subcontract. The punch list from this inspection is included in Appendix J.

On May 5, 2003 a Final Government Acceptance Inspection was performed for the work completed under the Excavation Subcontract. Representatives from the USACE, Maxymillian and TtFW attended this inspection. The Pre-Final Punch List was reviewed for completeness. Five tasks were identified as being incomplete. On May 16, 2003 TtFW inspected the site and verified that the work had been completed. The USACE signed off on the Final Government Acceptance Inspection for the excavation and Phase I Restoration work on May 19, 2003.

A Final-Final Government Acceptance Inspection was conducted on February 11, 2004 to verify that North of Wood Street Project was fully completed. USACE and TtFW signed this Final-Final Report on February 20, 2004. The last Final Inspection was performed on March 10, 2004. Copies all the signed inspection reports are included in Appendix J.

7.0 OPERATION AND MAINTENANCE PLAN

The only operations and maintenance that needs to be done in this area is performing sediment sampling to monitor potential re-contamination of the area due to tidal action and periodic monitoring of the restored areas.

7.1 Post-remediation Monitoring

The objective of post-remediation monitoring sampling will be to assess re-deposition of contaminated sediments in the North of Wood Street excavation area. This sampling will be conducted approximately one year after the completion of the North of Wood Street Remediation.

Post-remediation monitoring samples will be collected from 20 percent of the original confirmatory sample locations, for a total of 38 locations. Of these 38 locations, 80 percent, or 30 locations will be evenly spaced throughout the CDAs and be collected from or near the same location as the original confirmatory sample locations. These approximate locations are shown on Figure 1 in Appendix C. The remaining 20 percent (8 locations) will be biased toward depositional areas to be selected based on visual observations. The sampling team based on site conditions will select these locations.

Two 6-inch composite samples will be collected from each post-remedial monitoring sample location. The sample from the 0.0-0.5 feet depth range will be sent off-site for PCB congener analysis. The sample from 0.5-1.0 will be frozen and archived on-site. Composite intervals and methodology will be consistent with the plan and procedures followed during confirmation sampling. Sampling, sample handling, and analytical procedures will be done in accordance with the USACE approved QAPP and FSP.

7.2 Monitoring of Plantings

Monitoring of wetland and upland plantings and success of phragmites control efforts will occur for a period of three to five years following planting. Monitoring of wetlands will focus on the establishment of vigorous low marsh and high marsh plant communities and the restoration of pre-remediation functions and values. After the third growing season (2005), a determination will be made whether or not wetland functions and values have been successfully restored. A recommendation will then be made for whether or not further monitoring efforts are warranted. Annual reports will be prepared describing and documenting restoration status and recommending any interim actions (e.g., replanting and maintenance of goose fencing). A final wetlands delineation and functions and values assessment will be conducted following completion of monitoring to document successful restoration.

Upland plantings will be monitored for three years following planting, and any plantings that die during this period will be replaced. Phragmites control efforts will also be evaluated for three years following wetland planting, and recommendations for further monitoring and/or control will be made annually.

The goose fence is basically wooden grade stakes with plastic fencing. The goose fence has been effective in preventing the geese from eating the plants. The temporary fencing has to be re-instated in the spring of each year, due to the damage caused by the winter ice.

8.0 SUMMARY OF PROJECT COSTS AND SCHEDULE

8.1 Summary of Project Costs

Refer to Appendix I - North of Wood Street Project Cost Report for the detail project cost report.

Original Work Plan cost estimate for this work was $6,920,152 as negotiated with the USACE in August 2002. In December 2003, this budget was adjusted downward to $6,783,610 based on subsequent negotiations with the USACE on FCNs. Final actual costs were $6,153,540 for net variance of $631,328 (about 9.30% underrun). The major reason for this variance was the decision to not dispose of all materials off-site but to place the majority of the excavated materials into Cell No. 1 at Sawyer Street for temporary storage.

Summary of variances by job and subtask level is as follows:

Job WL – NWS Excavation Subcontractor under run variance was 15.44% ($658,660).

Subtask 01.01 (Mobilization of Construction Equipment) – This subtask had a cost under run of 24.12% ($179,049) due to lower subcontractors pricing.

Subtask 01.05 (Construct Temporary Facilities) – This subtask had a cost overrun of ($116,409) due to additional costs for installation of power drops for North of Wood Street project. This work was approved in FCN-24-035.

Subtask 03.02 (Clearing and Grubbing) – This subtask had a cost under run of 5.4% ($4,278) due to lower subcontractors pricing.

Subtask 07.04 (Air Pollution/Gas Collection and Control) – This subtask is projected to have a cost under run of 100% ($97,229) due to not having to apply the 25-hour and 90-day foam to control air emissions.

Subtask 09.01 (Dredging and Excavation) – This subtask had a cost net under run of 15.11% ($155,884). The lump sum bid prices for excavating the six zones (North, Lumberyard, Titleist, CSO, Mudflat and South) had a combined under run of $269,373. Additional cost included $111,313 for additional excavation, $23,564 for excavation to the north of the Titleist Parking Lot in November/December 2003 and $2,176 for premium pay to meet the fish window.

Subtask 09.03 (Waste Containment, Portable) – This subtask had a cost under run of 6.09% ($35,209). The budget for this subtask included additional stream pumping approved in FCN-24-044.

Subtask 09.07 (Lagoons/Basins/Tanks/Pump System) – This subtask had a cost overrun of 16.34% ($25,346) due to higher subcontractors pricing and additional work at South Berm approved in FCN-24-045.

Subtask 09.90 (DDA Operations) – This subtask had a cost under run of 36.48% ($266,350) due elimination of capping approved in FCN-24-068. Also included are costs for slurry operation approved in FCN-24-067.

Subtask 09.91 (Weather Allowance) – This subtask had a cost overrun of $178,953. This additional cost was to compensate the excavation subcontractor for delays in construction due to

winter weather conditions. The cost estimate had been based on the excavation work being completed in December 2003, while actually excavation only commenced in December.

Subtask 20.90 (Phase I Restoration) – This subtask had a cost under run of 24.92% ($158,235) due to lower subcontractors pricing and additional backfill in approved FCN-24-047.

Subtask 20.91 (Phase II Restoration) – This Subtask was budgeted to have $14,266 for Phase II Restoration work completed by the Excavation Subcontractor, but work was actually performed by the Phase II Restoration Subcontractor under Job WN.

Subtask 21.01 (Removal of Temporary Facilities) – This subtask had a cost under run of 68.8% ($83,942) due to lower subcontractors pricing.

Job WM – NWS Trucking and Disposal Subcontractor had a projected under run of 16.56% ($83,942).

Subtask 19.90 (Vegetated Off-Site Disposal) – This subtask had a cost under run of 16.56% ($83,492) due to increased vegetated material to dispose off-site approved in FCN-24-038.

Subtask 19.91 (Non-Vegetated Off-site Disposal) – The USACE had requested the change in scope to eliminate the cost for the disposal of the material to be stored in Cell No. 1 which was addressed in FCN-24-038.

Job WN – NWS Phase II Restoration Subcontract had a projected overrun of 105.46% ($102,642).

Subtask 20.91 (Site Restoration – YR 2003) – This subtask had a cost overrun of 105.46% ($102,642) due to price increase for trees and shrubs from original estimate and revised plantings approved in FCN-24-076 and FCN-24-078 for wetlands planting, and higher subcontractor pricing for the removal of the South Berm. The $45,000 budgeted for the monitoring and plant replacement was to be performed under TERC II.

Job WS – NWS TtFW Support had a projected overrun variance of 0.43% ($8,182).

Subtask 01.03 (Submittals/Implementation Plan) – This subtask had a cost overrun of 138.62% ($62,574) due to increased level of effort required for the preparation of the SAP, Work Plan, and Air Monitoring Plan.

Subtask 01.05 (Power Connection Distribution) – This subtask had a cost under run of 23.50% ($12,220) due to actual costs being less than estimated.

Subtask 02.03 (Air Monitoring and Sampling) – This subtask had a cost under run 27.83% ($62,914) due to decrease in air monitoring sampling events as directed by USACE.

Subtask 02.06 (Sampling Soil and Sediment) – This subtask had a cost overrun 0.12% ($282) due to increased costs for on-site laboratory approved in FCN-24-040.

Subtask 03.05 (Fencing) – This subtask had a cost overrun 4.92% ($2,653) due to additional temporary fencing approved in FCN-24-065.

Subtask 09.07 (Pre-cast Concrete Culverts) – This subtask had a cost overrun of 3.22% ($796) due to actual costs being higher than the estimated cost for the North and South Berm pre-cast concrete units.

Subtask 10.91 (Cylinder Removal) – This subtask had a cost overrun of ($413) for cylinder removal approved in FCN-24-049.

Subtask 21.06 (After Action Report) – This subtask had a cost overrun of 153.36% ($85,885) due to a greater level of effort required for preparation of the After Action Report than anticipated in the original cost estimate, additional mapping as required by FCN-24-098, and additional review cycles because of missing or incomplete data in the original drafts.

Subtask 22.02 (Administration Job Office) – This subtask had a cost under run of 100% ($10,250) due to elimination of computer hardware and software for the Site to prepare the as-built drawings and determine actual excavated quantities. This work was performed at TtFW's Boston Office and the cost for this work was included in Subtask/Activity WS.22.04.11.

Subtask 22.03 (Purchasing/Procurement) – This subtask had a cost overrun of 117.4% ($53,467) due to increased efforts required to perform the procurement and administration of the subcontracts.

Subtask 22.04 (Engineering, Surveying and QC) – This subtask had a cost net overrun of 4.8% ($24,704). This was due to increased costs for support of on-site laboratory approved in FCN-24-040, and CADD work performed in the TtFW Boston office to prepare as-built drawings and perform volume calculations, which were offset by a decrease in costs estimated for the QC Manager.

Subtask 22.07 (Health & Safety) – This subtask had a net cost overrun of 2.20% ($359).

Subtask 22.10 (Project Utilities) – This subtask had a cost under run of 80.69% ($165,325) due to decreased usage of electrical power from what was originally estimated.

Subtask 22.11 (Snow Removal) – This subtask has a cost over run of $950 to cover snow removal costs that were not in the original cost estimate.

Subtask WS.22.98 Indirect Rate Adjustment (Est.) – This subtask had a cost over run of $27,808 which is due to year-end adjustment to distribution cost to TtFW labor cost.

Subtask WS.22.99 Fee – This subtask was the cost of the fixed fee that was paid to TtFW for the management of this work.

8.2 Summary of Project Schedule

The Work Plan originally called for the work to be completed in June 2003 and that schedule date was met. Also the requirements for not interfering with the fish-run windows were met.

Details of the project schedule are presented in Appendix H.

9.0 OBSERVATIONS AND LESSONS LEARNED

9.1 Benefits of Performing the Work in the Dry

Damming off the river and performing the excavation in the dry allowed for better control of excavation depths, minimized the need for dewatering or stabilizing materials for transport, and eliminated the potential for re-contamination of clean areas due to action of tide and currents. Average over-excavation was only about 2-inches below design excavation vertical limits. Further improvements to limit over-excavation could be obtained by having a higher degree of survey control over the work.

9.2 Benefits of Performing the Excavation Work During the Winter

The remediation work was performed during winter conditions. These conditions in fact helped the excavation and processing of the material. The materials excavated were slightly frozen, therefore decanting of the materials prior to loading was minimized. The excavator was able to temporarily pile the excavated materials for later loading directly into the trucks for transport to the DDA or to the off-site disposal site for the vegetated materials.

Working in the winter eliminated any odor issues and the frozen ground eliminated the need for construction of haul roads in the riverbed. Also, ambient air data indicated that colder weather and frozen ground resulted in fewer PCB emissions and lower ambient concentrations.

9.3 Providing Sufficient Bypass Pumping Capacity

The sizing of the bypass pumping system was based on limited river flow data supplied by the USACE. If a hydrological study of the river had been performed, it could have resulted in a better estimate on the size of bypass pumps required. Eliminating the change out of pumps at the North Berm that was required in December 2003 would have saved time and money.

9.4 Culvert in North Berm Rather than Only Earthen Fill

The concrete culvert in the North Berm aided in construction of the earthen berm and provided a platform for the bypass pumps and helped manage flows, which were in excess of the pumping capacity and prevented repeated erosion of the North Berm

9.5 Use of Coir Fascine and Stone Rip-rap

The restoration design included use of coir fascine at mean low water along the entire shoreline, and the use of stone toe slope protection where the coir fascine was to be placed on subgrade fill material. Rip-rap was to be placed where it existed prior to excavation. The resulting use of both coir fascine and rip-rap along the entire shoreline represents a significant portion of the cost of material and installation, and may not be necessary in down river areas of the harbor. Restoration designs for remaining areas of the harbor should carefully consider if wetland soils could be sufficiently stabilized without the use of coir fascine or rip-rap.

9.6 Use of Clean Fill for Areas Behind Residences

In the area behind the residences, it was required that the final top one-foot of material meets PCB clean-up requirements of 1 ppm. It was more cost effective to remove materials to the lower clean-up goals of 50 ppm and then provide one-foot of clean fill material, rather removing all material with PCB

concentration greater than the 1 ppm clean-up goal. Not only was this approach cost effective, the layer of imported clean materials was aesthetically beneficial and better supported plant growth.

9.7 Cooperation of Stakeholders

Through cooperation with the USACE, the MADMF and TtFW, the work could be performed while not adversely impacting the spring fish migration. The opening of the river was successfully delayed from March 1 to March 15, which allowed work to be completed in the dry. Monitoring of the water temperatures was performed to prepare for possible river opening if temperatures approached 4°C as required by MADMF.

9.8 Phragmites Control

Control of phragmites should be given full consideration in designing and planning for remediation and restoration of shorelines. Western shoreline involved additional excavation to remove phragmite rhizomes and roots. Eastern shoreline required use of herbicides.

Also the USACE added additional swales in an attempt to prevent future spread of phragmites by diverting freshwater from storms away from the phragmites.

9.9 Benefits of Onsite Laboratory

An on-site laboratory was established at the Sawyer Street Facilities to provide rapid turnaround of confirmation sample test results for the construction team during the North of Wood Street remediation and to evaluate the advantages of an on-site laboratory for full scale dredging and excavating activities. The on-site laboratory proved to be highly effective in providing rapid turnaround results, especially in the intertidal area, where it became important to delineate contamination in small confined areas around backyard sheds and trees. It also proved to be flexible for analyzing additional samples on short notice when the clean-up goals near the Titleist plant (CDA No. 4) were changed following EPA's discussions with the Town and when additional characterization sampling was needed in another area of the harbor.

The costs for mobilization and validation of the on-site laboratory caused the analytical costs to be more than having the samples tested at an off-site laboratory. These laboratory mobilization costs would likely have been less significant and possibly become inconsequential in a longer duration program, especially if an efficient minimal sample throughput could be maintained.

A split sampling program identified some specific issues related to the on-site Spittler extraction method and the high PCB concentrations and moisture content of the sediment samples. Investigation of these issues also identified and allowed correction of some moisture related difficulties with the high-pressure fluid extraction process used at the off-site laboratory. If an on-site laboratory is used in the future, a similar split sampling program is recommended to identify and resolve issues early in the laboratory set-up process. An abbreviated (Spittler-type) extraction process may not be the best on-site extraction method for the difficult NBH matrix; however, with sufficient planning and set-up (and associated costs), fixed laboratory methods could be implemented in an on-site setting.

9.10 Confirmation Sampling

Implementation of the confirmatory sampling plan was successful in defining land areas (Compliance Demonstration Areas - CDAs) by cleanup goal and identifying groups of confirmatory samples to assess the effectiveness of the remediation. The number of samples in each CDA and the proposed locations were defined in the Field Sampling Plan before the start of remediation. The plan deliberately selected

more samples per CDA than needed for the statistical analysis to ensure a complete data set for each CDA and to provide a smaller grid pattern to better define the limits of additional excavation if needed. The plan was successful in each of these objectives. Having the sampling plan defined in advance allowed the construction crew to self-implement the collection of groups of samples on a schedule that was flexible with construction priorities. In the few instances where additional excavation was needed based on confirmation sample results, the excavation grid sizes were relatively small (25 or 50 foot) and limited the removal of additional sediment.

In few instances, samples were collected from slightly different locations than proposed and final mapping found that samples were collected from a different CDA than named. Because the sampling plan required more samples than needed for the statistical analysis, the number of samples from each CDA was not an issue. However, the naming conventions became confusing when evaluating the final results. Similarly, the sample IDs included a field designated as "dredge pass" (i.e., dredge pass = 01, would be the first sample collected following the initial excavation) to track the sequence of excavation and sampling. This field was not understood or used consistently by all of the data collection team at the beginning of the program. Some samples that should have been labeled as 01 dredge pass were incorrectly labeled as 00 dredge pass and created confusion during the data evaluation process.

The CDA mapping with the confirmatory sampling locations and grid spacing were developed based on the cleanup goal maps previously submitted and approved by USACE. For the North of Wood Street remediation, the area requiring excavation was a smaller than the area included on the clean up goal maps, especially in the area of CDA No. 4. This was not fully realized during the planning process, resulting in proposed confirmatory being collected outside of the excavation area within the designated clean-up goal area. The sampling crew collected the samples from outside of the excavation area in accordance with the proposed plan. The sample identification system suggested that these samples were collected to confirm remediation, this caused confusion during the data evaluation process. Although in this instance there was minimal cost impact, it is recognized that this situation on a larger scale remediation could create unnecessary costs in sampling and analysis. To avoid these situations in the future, it is recommended that the sample identification system be reviewed to assess whether a different sample coding system might be more flexible in documenting the purpose for each sample. This would facilitate the data evaluation process (a simpler alpha-numeric system has been suggested in the past, with noted advantages and disadvantages). Additional communication and coordination between field sample collection personnel and the data evaluation team is also recommended to ensure that there is an understanding of the purpose for the sample collection in addition to the mechanics. With a more complete understanding of the end-use of the data, field personnel may be able to provide more complete and relevant field documentation to assist with the data evaluation process.

In the remediation design process the clean-up goal map should be used as the basis for the design of the excavation areas. Once the excavation areas have been defined, the map of these areas should be used to develop the final configuration of each CDA. Then the location of the proposed confirmation samples can be confined to areas where removal of material is planned.

To differentiate confirmation samples taken after additional material removal from those samples taken before, the surface elevation of each sample should recorded and so indicated on the confirmation sampling reports.

9.11 Advantage of Fixed Completion Date

In this remediation effort, the date for opening the river for the fish run was a fixed end date for completing excavation and Phase I Restoration work in the river. This fixed end date kept all parties

focused and working as a team. In spite of some significant set backs due to storm events and extreme winter conditions, the excavation and Phase I Restoration was completed by March 15th date.

In future remediation efforts it is important that fixed completion dates be set and agreed upon to keep all parties focused on the timely completion of the work.

9.12 Pre-Existing Condition Surveys

To establish limits of excavation a walk of the site should be made before finalizing the excavation design. The limits of the excavation should be flagged in the field. The location of the boundary flags should be surveyed and recorded. This boundary survey should then be shown on the drawings. The delineation of the excavation boundary could be done when the pre-existing topographical survey is being performed. This approach could have eliminated the EPA modifications to the excavation boundaries after the excavation subcontract had been awarded.

This field survey would also be used to verify existing conditions shown on the design drawings. In the case of the North of Wood Street work, the existing wooden piling under the bridge could have been identified and identified for removal as part of the base scope of work rather than being addressed as a field change order.

10.0 CONTACT INFORMATION

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11.0 REFERENCES

Foster Wheeler Environmental Corporation, New Bedford Harbor Site Safety and Health Plan.

Foster Wheeler Environmental Corporation, North of Wood Street Work Plan submitted to the USACE on July 23, 2003.

Foster Wheeler Environmental Corporation, New Bedford Harbor Project Field Sampling Plan.

Foster Wheeler Environmental Corporation, New Bedford Harbor Project QAPP.

Foster Wheeler Environmental Corporation, New Bedford Harbor Project QC/QA Plan.

Foster Wheeler Environmental Corporation, North of Wood Street Confirmatory Sampling Report transmitted to USACE on August 26, 2003.

U.S. Environmental Protection Agency, 1998, Record of Decision, Upper and Lower Harbor Operable Unit, New Bedford Harbor Superfund Site, September 25, 1998.

U.S. Environmental Protection Agency, 2000, Close Out Procedures for National Priority List Sites; Guidance Document No. EPA 540-R-98-016, January 2000.

Appendix A

Waste Shipment Records

Appendix A.1 Off-site Disposal Information Shipped to Model City, NY

Appendix A.2 Manifested Materials to the DDA

Appendix A.1

Off-site Disposal Information Shipped to Model City, NY

North of Wood Street Site
Waste Management
Transportation and Disposal Tracking Log - Material Sent to Model City, NY

SHIPMENT DATE	DISPOSAL DATE	DOC. #	MANIFEST#	TRAILER PLATE#	CERTIFICATE OF DISPOSAL	NET ACTUAL KILOS		NET ACTUAL TONS	
						Load	Daily	Load	Daily
12/16/02	12/17/02	01	NYB9731079	AC-40405-NY	X	26,463		29.17	
12/16/02	12/17/02	02	NYB9731088	AF-42132-NY	X	25,900		28.55	
12/16/02	12/17/02	03	NYB9731097	AB-58310-NY	X	23,451		25.85	
12/16/02	12/17/02	04	NYB9731106	AF-16233-NY	X	28,549		31.47	
12/16/02	12/17/02	05	NYB9731115	JEN ICE-NY	X	32,958	137,321	36.33	151.37
12/20/02	12/23/02	06	NYB9731133	AC-95899-NY	X	30,264		33.36	
12/20/02	12/23/02	07	NYB9731169	AB-58310-NY	X	21,764		23.99	
12/20/02	12/23/02	08	NYB9731151	AF-42132-NY	X	24,875		27.42	
12/20/02	12/23/02	09	NYB9731142	AF-16233-NY	X	24,966		27.52	
12/20/02	12/23/02	10	NYB9731178	AC-40405-NY	X	22,272	124,141	24.55	136.84
12/30/02	12/31/02	11	NYB9731196	AE-94114-NY	X	30,173		33.26	
12/30/02	12/31/02	12	NYB9731205	AD-45435-NY	X	31,135		34.32	
12/30/02	12/31/02	13	NYB9731187	AC-40405-NY	X	26,989	88,297	29.75	97.33
01/03/03	01/07/03	14	NYB9731214	AF-16233-NY	X	33,376		36.79	
01/03/03	01/07/03	15	NYB9731223	AE-94114-NY	X	31,416		34.63	
01/03/03	01/07/03	16	NYB9731232	AE-53089-NY	X	29,248		32.24	
01/03/03	01/07/03	17	NYB9731241	AD-65298-NY	X	30,518	124,558	33.64	137.30
01/09/03	01/10/03	18	NYB9731511	AD-65298-NY	X	26,218		28.90	
01/09/03	01/10/03	19	NYB9731529	AF-16233-NY	X	29,747		32.79	
01/09/03	01/10/03	20	NYB9731538	AD-35962-NY	X	29,647		32.68	
01/09/03	01/10/03	21	NYB9731547	AC-40405-NY	X	26,626		29.35	
01/09/03	01/10/03	22	NYB9731556	JEN ICE-NY	X	27,579		30.40	
01/09/03	01/10/03	23	NYB9731565	AD-58336-NY	X	26,227	166,044	28.91	183.03
01/14/03	01/15/03	24	NYB9731484	AE-94114-NY	X	28,377		31.28	
01/14/03	01/15/03	25	NYB9731493	AE-53089-NY	X	27,951		30.81	
01/14/03	01/15/03	26	NYB9731502	AD-35962-NY	X	27,642	83,970	30.47	92.56
01/17/03	01/20/03	27	NYB9731475	AC-95931-NY	X	26,944		29.70	
01/17/03	01/20/03	28	NYB9731466	AD-45435-NY	X	25,864	52,808	28.51	58.21
01/17/03	VOID	29	NYB9731457	VOID	VOID	VOID	VOID	NA	NA
01/21/03	01/22/03	29	NYB9731439	AD-45435-NY	X	30,182		33.27	
01/21/03	01/22/03	30	NYB9731448	AC-40405-NY	X	25,547		28.16	
01/21/03	01/22/03	31	NYB9731421	AD-58336-NY	X	28,522	84,251	31.44	92.87
01/24/03	01/27/03	32	NYB9731385	AE-94114-NY	X	29,348		32.35	
01/24/03	01/28/03	33	NYB9731394	JEN ICE-NY	X	28,577		31.50	
01/24/03	01/27/03	34	NYB9731412	AD-45434-NY	X	25,438		28.04	
01/24/03	01/27/03	35	NYB9731403	AD-35962-NY	X	27,570	110,933	30.39	122.28

North of Wood Street Site
Waste Management
Transportation and Disposal Tracking Log - Material Sent to Model City, NY

SHIPMENT DATE	DISPOSAL DATE	DOC. #	MANIFEST#	TRAILER PLATE#	CERTIFICATE OF DISPOSAL	NET ACTUAL KILOS		NET ACTUAL TONS	
						Load	Daily	Load	Daily
02/06/03	02/10/03	36	NYB9731322	AF-42132-NY	X	30,001		33.07	
02/06/03	02/10/03	37	NYB9731331	AD-35962-NY	X	30,727		33.87	
02/06/03	02/10/03	38	NYB9731349	AF-16233-NY	X	32,768		36.12	
02/06/03	02/10/03	39	NYB9731358	XS-19525-PA	X	27,615		30.44	
02/06/03	02/13/03	40	NYB9731367	AE-94114-NY	X	32,106		35.39	
02/06/03	02/10/03	41	NYB9731376	AE-53089-NY	X	27,751	180,968	30.59	199.48
02/10/03	02/10/03	42	NYB9691083	AC-95899-NY	X	29,275		32.27	
02/10/03	02/11/03	43	NYB9731259	AC-40405-NY	X	31,770		35.02	
02/10/03	02/11/03	44	NYB9731268	AB-88761-NY	X	32,541		35.87	
02/10/03	02/11/03	45	NYB9731277	JEN ICE-NY	X	30,790		33.94	
02/10/03	02/11/03	46	NYB9731286	XP-09364-PA	X	17,672		19.48	
02/10/03	02/11/03	47	NYB9731295	AB-58310-NY	X	22,816		25.15	
02/10/03	02/11/03	48	NYB9731304	AB-58309-NY	X	22,390	187,254	24.68	206.41
02/10/03	VOID	49	NYB9731313	VOID	VOID	VOID	VOID	VOID	VOID
02/12/03	02/13/03	49	NYB9691011	JEN ICE-NY	X	39,336		43.36	
02/12/03	02/13/03	50	NYB991002	AC-40405-NY	X	27,098		29.87	
02/12/03	02/13/03	51	NYB9691074	AB-88761-NY	X	30,545		32.92	
02/12/03	02/13/03	52	NYB9691065	AE-53089-NY	X	29,865		32.92	
02/12/03	02/13/03	53	NYB9691056	AF-16233-NY	X	27,170		29.95	
02/12/03	02/13/03	54	NYB961047	AF-42132-NY	X	28,867		31.82	
02/12/03	02/13/03	55	NYB9691038	AD-58336-NY	X	29,783		32.83	
02/12/03	02/13/03	56	NYB9691029	PT-9534C-PA	X	26,808	239,472	29.55	263.22
02/14/03	02/18/03	57	NYB9690912	AE-94114-NY	X	31,171		34.36	
02/14/03	02/17/03	58	NYB9690921	AE-53089-NY	X	29,865		32.92	
02/14/03	12/19/03	59	NYB9690948	AC-40405-NY	X	24,494		27.00	
02/14/03	02/17/03	60	NYB9690957	JEN ICE-NY	X	29,502		32.52	
02/14/03	02/17/03	61	NYB9690966	AD-58336-NY	X	27,769		30.61	
02/14/03	02/17/03	62	NYB9690975	AF-42132-NY	X	29,057		32.03	
02/14/03	02/17/03	63	NYB9690984	AF-16233-NY	X	29,928		32.99	
02/14/03	02/17/03	64	NYB9690993	AF-73022-NY	X	31,579	233,365	34.81	257.24
02/19/03	02/20/03	65	NYB9690894	AB-88761-NY	X	29,148		32.13	
02/19/03	02/20/03	66	NYB9690885	AE-53089-NY	X	30,146		33.23	
02/19/03	02/20/03	67	NYB9690876	JEN ICE-NY	X	34,337		37.85	
02/19/03	02/20/03	68	NYB9690867	AD-58336-NY	X	27,424		30.23	
02/19/03	02/20/03	69	NYB9690858	AC-18002-NY	X	28,658		31.59	
02/19/03	02/20/03	70	NYB9690849	AG-24558-NY	X	29,565		32.59	
02/19/03	02/20/03	71	NYB9690831	AF-42132-NY	X	28,949		31.91	
02/19/03	02/20/03	72	NYB9690822	AF-16233-NY	X	29,647	237,874	32.68	262.21

North of Wood Street Site

Waste Management

Transportation and Disposal Tracking Log - Material Sent to Model City, NY

SHIPMENT DATE	DISPOSAL DATE	DOC. #	MANIFEST#	TRAILER PLATE#	CERTIFICATE OF DISPOSAL	NET ACTUAL KILOS		NET ACTUAL TONS	
						Load	Daily	Load	Daily
02/21/03	02/24/03	73	NYB9690813	AF-16233-NY	X	29,030		32.00	
02/21/03	02/24/03	74	NYB9690804	AF-42132-NY	X	29,901		32.96	
02/21/03	02/24/03	75	NYB9690786	AB-88761-NY	X	35,671		39.32	
02/21/03	02/24/03	76	NYB9690777	AE-53089-NY	X	28,368		31.27	
02/21/03	02/24/03	77	NYB9690768	AG-24558-NY	X	28,277		31.17	
02/21/03	02/24/03	78	NYB9690759	AC-95896-NY	X	28,323		31.22	
02/21/03	02/24/03	79	NYB9690795	JEN ICE-NY	X	31,443		34.66	
02/21/03	02/24/03	80	NYB9690741	AD-58336-NY	X	26,980		29.74	
02/21/03	02/24/03	81	NYB9690732	AC-95931-NY	X	24,376		26.87	
02/21/03	02/24/03	82	NYB9690048	XP-09364-PA	X	22,117		24.38	
02/21/03	02/24/03	83	NYB9690057	AD-35962-NY	X	29,475	313,961	32.49	346.08

TOTAL NET ACTUAL
2,365,217 (KILO)
2,606.43 (TONS)

Appendix A.2

Manifested Materials to the DDA

Manifest Log
Maxymillian Technologies, Inc.
North of Wood Street Remediation

Project Manifest Number	Date	Number of Truck Loads	Truck License Plate Number	State Manifest Number	Address/Area Removed
1	11/19/2002	1	MA56927	MA K085654	246 River Rd (Lumberyard)
2	11/19/2002	1	MA45041	MA K085653	246 River Rd (Lumberyard)
3	11/20/2002	1	MA56927	MA K085652	136 River Rd (South Berm)
4	11/20/2002	-	MA45041	MA K085655	VOID
5	11/21/2002	2	MA45041	MA K085657	136 River Rd (South Berm)
6	11/21/2002	3	MA56927	MA K085656	136 River Rd (South Berm)
7	11/22/2002	2	MA45041	MA K085658	136 River Rd (South Berm)
8	11/22/2002	2	MA56927	MA K085659	136 River Rd (South Berm)
9	11/25/2002	5	MA45041	MA K085661	246 River Rd (Lumberyard)
10	11/25/2002	5	MA56927	MA K085660	246 River Rd (Lumberyard)
11	11/26/2002	5	MA56927	MA K085665	136 River Rd (South Berm)
12	11/26/2002	5	MA45041	MA K085664	136 River Rd (South Berm)
13	11/27/2002	4	MA45041	MA K085663	246 River Rd (Lumberyard)
14	11/27/2002	4	MA56927	MA K085662	246 River Rd (Lumberyard)
15	12/2/2002	3	MA56927	MAK085667	136 River Rd (South Berm)
16	12/2/2002	3	MA45041	MAK085666	136 River Rd (South Berm)
17	12/4/2002	1	MA45041	MAK085670	136 River Rd (South Berm)
18	12/4/2002	2	MA56927	MAK085668	136 River Rd (South Berm)
19	12/5/2002	-	MA45041	MAK085671	VOID
20	12/5/2002	1	MA56927	MAK085672	136 River Rd (South Berm)
21	12/6/2002	3	MA56927	MAK085673	136 River Rd (South Berm)
22	12/6/2002	2	MA45041	MAK085674	136 River Rd (South Berm)
23	12/9/2002	3	MA45041	MAK085675	136 River Rd (South Berm)
24	12/9/2002	1	MA56927	MAM178926	136 River Rd (South Berm)
25	12/10/2002	5	MA45041	MAM178928	136 River Rd (South Berm)
26	12/10/2002	3	MA56927	MAM178927	136 River Rd (South Berm)
27	12/10/2002	3	MA48405	MAM178929	136 River Rd (South Berm)
28	12/11/2002	1	MA56927	MAM178931	136 River Rd (South Berm)
29	12/11/2002	1	MA45041	MAM178930	136 River Rd (South Berm)
30	12/17/2002	5	MA45041	MAM178935	CSO Zone- River Road
31	12/17/2002	5	MA56927	MAM178937	CSO Zone- River Road
32	1/7/2003	4	MA361498	MAM178938	CSO Zone- River Road
33	1/7/2003	1	MA56927	MAM178939	CSO Zone- River Road
34	1/7/2003	-	MA361500	MAM178940	VOID
35	1/8/2003	-	MA45041	MAM178941	VOID
36	1/8/2003	4	MA56927	MAM178942	CSO Zone- River Road
37	1/8/2003	4	MA361498	MAM178943	CSO Zone- River Road
38	1/9/2003	8	MA361498	MAM178946	CSO Zone- River Road
39	1/9/2003	-	MA361500	MAM178945	VOID
40	1/9/2003	2	MA56927	MAM178944	CSO Zone- River Road
41	1/9/2003	7	MA45041	MAM178947	CSO Zone- River Road
42	1/10/2003	11	MA361498	MAM178949	CSO Zone- River Road
43	1/10/2003	10	MA45041	MAM178948	CSO Zone- River Road
44	1/10/2003	9	MA361500	MAM178950	CSO Zone- River Road

Manifest Log
Maxymillian Technologies, Inc.
North of Wood Street Remediation

Project Manifest Number	Date	Number of Truck Loads	Truck License Plate Number	State Manifest Number	Address/Area Removed
45	1/13/2003	8	MA56927	MAM178954	CSO Zone- River Road
46	1/13/2003	10	MA45041	MAM178953	CSO Zone- River Road
47	1/13/2003	10	MA361498	MAM178952	CSO Zone- River Road
48	1/13/2003	5	MA361500	MAM178951	CSO Zone- River Road
49	1/14/2003	9	MA361498	MAM178955	CSO Zone- River Road
50	1/14/2003	8	MA361500	MAM178956	CSO Zone- River Road
51	1/14/2003	8	MA45041	MAM178957	CSO Zone- River Road
52	1/14/2003	7	MA56927	MAM178958	CSO Zone- River Road
53	1/15/2003	10	MA361498	MAM178959	CSO Zone- River Road
54	1/15/2003	10	MA361500	MAM178960	CSO Zone- River Road
55	1/15/2003	9	MA45041	MAM178961	CSO Zone- River Road
56	1/15/2003	9	MA56927	MAM178962	CSO Zone- River Road
57	1/16/2003	11	MA361498	MAM178963	CSO Zone- River Road
58	1/16/2003	11	MA361500	MAM178964	CSO Zone- River Road
59	1/16/2003	6	MA45041	MAM178965	CSO Zone- River Road
60	1/16/2003	7	MA56927	MAM178966	CSO Zone- River Road
61	1/17/2003	11	MA361498	MAM178967	CSO Zone- River Road
62	1/17/2003	11	MA361500	MAM178968	CSO Zone- River Road
63	1/17/2003	9	MA45041	MAM178969	CSO Zone- River Road
64	1/17/2003	3	MA56927	MAM178970	CSO Zone- River Road
65	1/20/2003	12	MA361498	MAM178971	Mudflat Zone- River Road
66	1/20/2003	11	MA361500	MAM178972	Mudflat Zone- River Road
67	1/20/2003	9	MA45041	MAM178973	Mudflat Zone- River Road
68	1/20/2003	7	MA56927	MAM178974	Mudflat Zone- River Road
69	1/21/2003	10	MA361498	MAM178975	Mudflat Zone- River Road
70	1/21/2003	9	MA361500	MAM178976	Mudflat Zone- River Road
71	1/21/2003	10	MA45041	MAM178977	Mudflat Zone- River Road
72	1/21/2003	7	MA56927	MAM178978	Mudflat Zone- River Road
73	1/22/2003	9	MA361498	MAM178979	Mudflat Zone- River Road
74	1/22/2003	9	MA361500	MAM178980	Mudflat Zone- River Road
75	1/22/2003	5	MA45041	MAM178981	Mudflat Zone- River Road
76	1/22/2003	-	MA56927	VOID	VOID
77	1/23/2003	9	MA56927	MAM178983	Mudflat Zone- River Road
78	1/23/2003	9	MA361500	MAM178984	Mudflat Zone- River Road
79	1/23/2003	10	MA361498	MAM178985	Mudflat Zone- River Road
80	1/23/2003	8	MA45041	MAM178986	Mudflat Zone- River Road
81	1/24/2003	11	MA361498	MAM178987	Mudflat Zone- River Road
82	1/24/2003	11	MA361500	MAM178988	Mudflat Zone- River Road
83	1/24/2003	9	MA45041	MAM178989	Mudflat Zone- River Road
84	1/24/2003	9	MA56927	MAM178990	Mudflat Zone- River Road
85	1/27/2003	13	MA361498	MAM178991	Mudflat Zone- River Road
86	1/27/2003	13	MA361500	MAM178992	Mudflat Zone- River Road
87	1/27/2003	1	MA45041	MAM178993	Mudflat Zone- River Road
88	1/27/2003	9	MA56927	MAM178994	Mudflat Zone- River Road

Manifest Log
Maxymillian Technologies, Inc.
North of Wood Street Remediation

Project Manifest Number	Date	Number of Truck Loads	Truck License Plate Number	State Manifest Number	Address/Area Removed
89	1/27/2003	1	MA361491	MAM178995	Mudflat Zone- River Road
90	1/28/2003	12	MA361498	MAM178996	Mudflat Zone- River Road
91	1/28/2003	12	MA361500	MAM178997	Mudflat Zone- River Road
92	1/28/2003	7	MA361491	MAM178998	Mudflat Zone- River Road
93	1/28/2003	5	MA45041	MAM178999	Mudflat Zone- River Road
94	1/29/2003	16	MA361498	MAM179000	Mudflat Zone- River Road
95	1/29/2003	13	MA361500	MAM179001	Mudflat Zone- River Road
96	1/29/2003	12	MA361491	MAM179002	Mudflat Zone- River Road
97	1/29/2003	12	MA45041	MAM179003	Mudflat Zone- River Road
98	1/30/2003	13	MA361498	MAM179004	Mudflat Zone- River Road
99	1/30/2003	13	MA361500	MAM179005	Mudflat Zone- River Road
100	1/30/2003	11	MA361491	MAM179006	Mudflat Zone- River Road
101	1/30/2003	10	MA45041	MAM179007	Mudflat Zone- River Road
102	1/31/2003	12	MA361498	MAM179008	Mudflat Zone- River Road
103	1/31/2003	12	MA361500	MAM179009	Mudflat Zone- River Road
104	1/31/2003	8	MA361491	MAM179010	Mudflat Zone- River Road
105	1/31/2003	9	MA45041	MAM179011	Mudflat Zone- River Road
106	2/3/2003	4	MA361498	MAM179012	Mudflat Zone- River Road
107	2/3/2003	7	MA361500	MAM179013	Mudflat Zone- River Road
108	2/3/2003	-	MA361491	MAM179014	VOID
109	2/3/2003	4	MA45041	MAM179015	Mudflat Zone- River Road
110	2/3/2003	1	MA29325	MAM179016	Mudflat Zone- River Road
111	2/4/2003	7	MA45041	MAM179017	Mudflat Zone- River Road
112	2/4/2003	7	MA361500	MAM179018	Mudflat Zone- River Road
113	2/4/2003	-	MA361498	MAM179019	VOID
114	2/4/2003	7	MA29325	MAM179020	Mudflat Zone- River Road
115	2/5/2003	1	MA361500	MAM179021	Mudflat Zone- River Road
116	2/5/2003	3	MA45041	MAM179022	Mudflat Zone- River Road
117	2/5/2003	3	MA29325	MAM179023	Mudflat Zone- River Road
118	2/6/2003	8	MA361500	MAM179025	Mudflat Zone- River Road
119	2/6/2003	9	MA36198	MAM179024	Mudflat Zone- River Road
120	2/6/2003	9	MA45041	MAM186976	Mudflat Zone- River Road
121	2/10/2003	9	MA361498	MAM186977	Mudflat Zone- River Road
122	2/10/2003	8	MA29325	MAM186978	Mudflat Zone- River Road
123	2/10/2003	9	MA361500	MAM186979	Mudflat Zone- River Road
124	2/11/2003	10	MA361500	MAM186980	Mudflat Zone- River Road
125	2/11/2003	10	MA361498	MAM186981	Mudflat Zone- River Road
126	2/11/2003	8	MA45041	MAM186982	Mudflat Zone- River Road
127	2/12/2003	9	MA361500	MAM186983	Mudflat Zone- River Road
128	2/12/2003	10	MA361498	MAM186984	Mudflat Zone- River Road
129	2/12/2003	10	MA45041	MAM186985	Mudflat Zone- River Road
130	2/13/2003	10	MA351500	MAM186986	Mudflat Zone- River Road
131	2/13/2003	10	MA361498	MAM186987	Mudflat Zone- River Road
132	2/13/2003	8	MA45041	MAM186988	Mudflat Zone- River Road

Manifest Log
Maxymillian Technologies, Inc.
North of Wood Street Remediation

Project Manifest Number	Date	Number of Truck Loads	Truck License Plate Number	State Manifest Number	Address/Area Removed
133	2/14/2003	8	MA361498	MAM186989	Mudflat Zone- River Road
134	2/14/2003	8	MA361500	MAM186990	Mudflat Zone- River Road
135	2/14/2003	7	MA45041	MAM186991	Mudflat Zone- River Road
136	2/18/2003	8	MA361498	MAM186992	River Road to River Road
137	2/19/2003	10	MA361500	MAM186993	Mudflat Zone- River Road
138	2/19/2003	-	VOID	VOID	VOID
139	2/19/2003	6	MA45041	MAM186995	Mudflat Zone- River Road
140	2/19/2003	18	MA361491	MAM186996	River Road to River Road
141	2/20/2003	10	MA361498	MAM186994	Mudflat Zone- River Road
142	2/20/2003	1	MA361491	MAM186997	River Road to River Road
143	2/20/2003	11	MA361500	MAM186998	Mudflat Zone- River Road
144	2/20/2003	3	MA45041	MAM186999	Mudflat Zone- River Road
145	2/21/2003	4	MA45041	MAM186877	River Road to River Road
146	2/21/2003	9	MA361500	MAM187000	River Road to River Road
147	2/21/2003	8	MA361498	MAM186876	River Road to River Road
148	2/24/2003	-	VOID	VOID	VOID
149	2/24/2003	4	MA45041	MAM186879	Mudflat Zone- River Road
150	2/28/2003	3	MA45041	MAM186881	Mudflat Zone- River Road
151	3/11/2003	2	MA361498	MAM186882	Lumberyard-River Road
152	3/17/2003	6	MA361498	MAM186883	Lumberyard- River Road
153	3/27/2003	5	MA361498	MAM186884	South Zone -- River Road
154	12/3/2003	4	MA361498	MAM186884	Titlelist - Area
155	12/4/2003	6	MA361498	MAM186884	Titlelist - Area
156	12/5/2003	6	MA361498	MAM186884	Titlelist - Area
Total Truck Loads		1,030			

Appendix B

Air Sampling Data

USACE CONTRACT NO. DACW33-94-D-0002
TASK ORDER NO. 024
TOTAL ENVIRONMENTAL RESTORATION CONTRACT

AIR SAMPLE RESULTS
NORTH OF WOOD STREET
REMEDIATION WORK EFFORT
NEW BEDFORD HARBOR SUPERFUND SITE

New Bedford, Massachusetts
(Previously Transmitted on 1/27/03, 3/17/03, and 6/9/03)

October 2003

Station IDs:
AQ Site 02
AQ Site 03
AQ Site 06
AQ Site 28
AQ Site 31
AQ Site 32
AQ Site 33
AQ Site 34
AQ Site 37

Prepared for

U.S. Army Corps of Engineers
New England District
Concord, Massachusetts

2003-024-0383
10/7/03

USACE CONTRACT NO. DACW33-94-D-0002
TASK ORDER NO. 024
TOTAL ENVIRONMENTAL RESTORATION CONTRACT

AIR SAMPLE RESULTS
NORTH OF WOOD STREET
REMEDIATION WORK EFFORT
NEW BEDFORD HARBOR SUPERFUND SITE

New Bedford, Massachusetts
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Station IDs:
AQ Site 02
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AQ Site 28
AQ Site 31
AQ Site 32
AQ Site 33
AQ Site 34
AQ Site 37

Prepared for

U.S. Army Corps of Engineers
New England District
Concord, Massachusetts

Prepared by

Tetra Tech FW Inc.
133 Federal Street
Boston, Massachusetts 02110

Revision	Date	Prepared By	Approved By	Pages Affected
0	10/6/03	Y. Zhang	H. Douglas	All

Summary of Air Sample Results
North of Wood Street Remediation

	Sawyer Street			North of Wood Street					
Sampling Location	AQ Site 2	AQ Site3	AQ Site 6	AQ Site 28	AQ Site 31	AQ Site 32	AQ Site 33	AQ Site 34	AQ Site 37
Sampling Date [month/day/year]	Total PCBs* [ng/m^3]	Total PCBs* [ng/m^3]	Total PCBs* [ng/m^3]	Total PCBs* [ng/m^3]	Total PCBs* [ng/m^3]	Total PCBs* [ng/m^3]	Total PCBs* [ng/m^3]	Total PCBs* [ng/m^3]	Total PCBs* [ng/m^3]
11/12/02	67	59	24						
11/18/02				0.57	3.4	0.77	4.2	5.2	
11/26/02				0.62	1.5	0.88	5.5	3.4	
12/12/02				0.72	2.9	1.6	6	5	
12/30/02				0.51	1.4	1.7	1.9	1.8	
01/08/03	23	8.1	2.5	6.5	21	7.7		16	8.7
01/23/03	46	0.32	0.46	0.21	2.7	0.3		13	2.5
02/10/03	30	14	3.7	2.6	4.6	5.4		6	12
02/25/03	100	0.76	0.81	0.15	1.4	0.28		1.8	0.83
03/19/03	24	15	35						
04/29/03	160	81	20						
Station Average	64	25	12	1.3	4.3	2.1	4.4	5.8	6.0
Station Maximum	160	81	35	6.5	21	7.7	6	16	12

Samples were collected and analyzed in accordance with the project Field Sampling Plan (FSP) and Quality Assurance Project Plan (QAPP). Data are evaluated relative to the Exposure Budget Tracking Process described in the Development of PCB Air Action Levels for the Protection of the Public, New Bedford Superfund Site, August 2001. Results of these evaluations are included in the attached reports (previously transmitted during the construction effort). Exposure budgets were not exceeded during this remediation effort.

* Reported as the sum of the detected total homologue groups.

Air Sampling Status

New Bedford Harbor Superfund Site

Station #: AQ Site 02 - E Side of CDF
Exposure Budget Slope (EBS) = 611 ng/m^3-day

Collection Date: 4/29/03

Construction Activity: North of Wood Street Remediation Work Effort

This report summarizes sample results for the above referenced location and date. The samples were collected on polyurethane foam (PUF)/XAD sample media with a glass fiber pre-filter using a PS-1 HI-Vol sampler. The samples were analyzed using high-resolution mass spectrometry (HRGCMS) for total PCB homologue groups. Results are evaluated relative to the Exposure Budget Tracking Process described in the Development of PCB Air Action Levels for the Protection of the Public, New Bedford Superfund Site, August 2001. Cumulative data for this reporting period are included on pages 2 and 3. Sample Station Information is summarized in attached Table 1 and illustrated on Figure 1. Air concentration trigger information is presented in attached Table 2.

Summary of This Sampling Period:

C5 and C5&C7 concentration triggers were identified during this sampling period. These triggering conditions were of comparison type and the values for comparison were low. The higher total PCB concentration observed at the sampling station during this period was probably caused by a combination of the higher ambient temperature, calm winds directed toward the station, and more active site activities (transferring dredged material to the CDF and/or DDA). Since the expenditure of the cumulative exposure budget to date was still at a low level at this point in the project, no change in field procedures is warranted.

Air Sampling Status Report

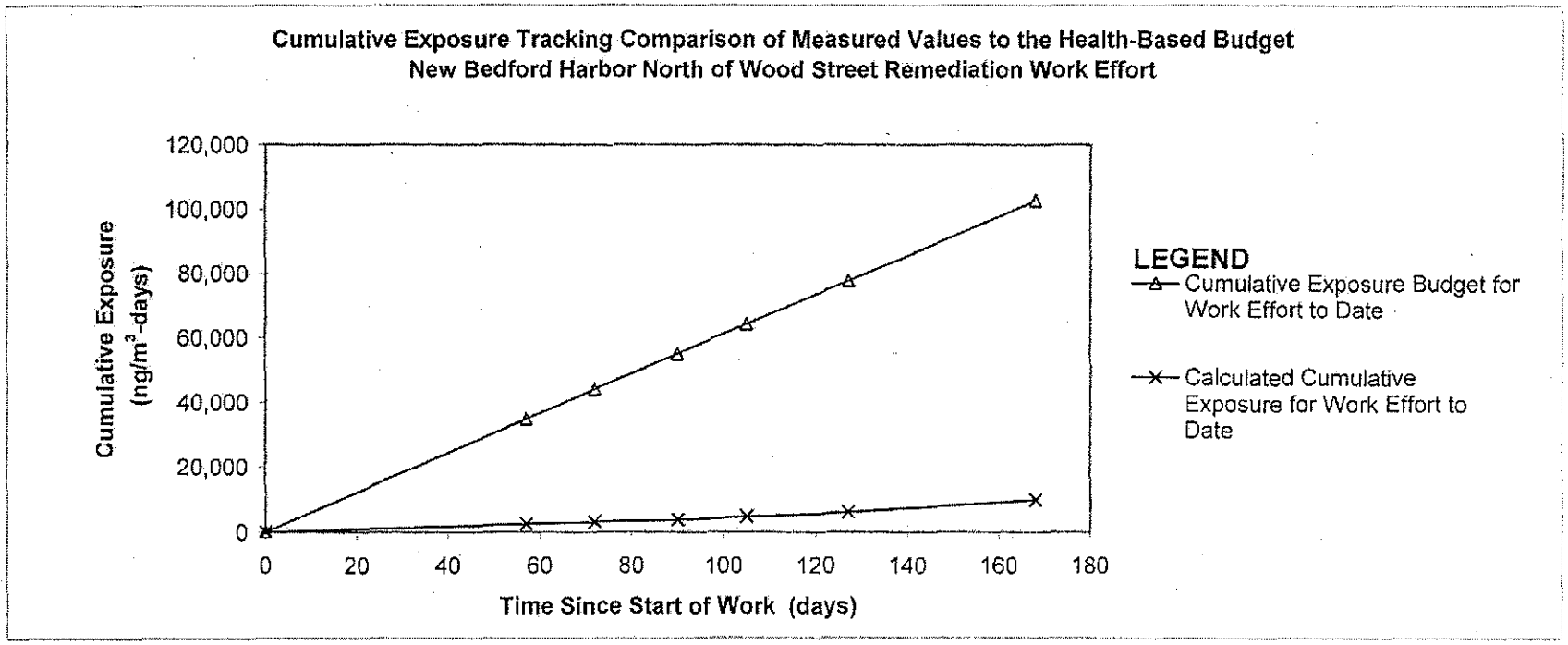
Sample Station :	AQ Site 02 - E Side of CDF
Collection Date:	4/29/03
Measured PCB Concentration (ng/m^3):	160
Exposure Budget Expended During This Period:	15.1%
Cumulative Exposure Budget Expended to Date:	9.6%
Response Level:	LOW
Response:	Evaluate the Cause and Significance of the Triggering Conditions

Triggers:

Low

Trigger C5: Measured Concentration Exceeds the Annual Average Background Concentration by more than 200%

Trigger C5 and Trigger C7: C5: Measured Concentration Exceeds the Annual Average Background Concentration by more than 200%; C7: Measured Concentration has Doubled Since the Last Monitoring Period



Sample Results, Calculated Budget and Exposure Values

AQ Site 02 - E Side of CDF Air Sampling Station
NBH North of Wood Street Remediation Work Effort
Ambient Air Sampling

(A) Event	(B) Sampling Date	(C) Days Since Previous Sampling Event	(D) Work Effort Elapsed Time	(E) Estimated Work Effort Remaning	(F) PCB Concentration Result	(G) Average of Most Recent Two Concentration Results	(H) Weighted Average of Concentration Results	(I) Exposure Budget for the Period	(J) Cumulative Exposure Budget for Work Effort to Date	(K) Measured Exposure During the Period	(L) Calculated Cumulative Exposure for Work Effort to Date	(M) Exposure Budget Expended During the Period	(N) Cumulative Exposure Expended for Work Effort to Date
[#]	[month/day/year]	[days]	Sum of Column (C) to Date [days]	[days]	[ng/m^3]	[ng/m^3]	Column (L)/Column (D) [ng/m^3]	EBS[1] * Column (C) [ng/m^3-days]	Sum of Column (I) [ng/m^3-days]	Column (G)* Column (C) [ng/m^3-days]	Sum of Column (K) [ng/m^3-days]	Column (K) /Column (I) [%]	Column (L) /Column (J) [%]
1	11/12/02	0	0	354	67	67	67	NC	NC	NC	NC	NC	NC
2	1/8/03	57	57	297	23	45	45	34,827	34,827	2565	2565	7.4%	7.4%
3	1/23/03	15	72	282	46	35	43	9,165	43,992	518	3083	5.6%	7.0%
4	2/10/03	18	90	264	30	38	42	10,998	54,990	684	3767	6.2%	6.8%
5	2/25/03	15	105	249	100	65	45	9,165	64,155	975	4742	10.6%	7.4%
6	3/19/03	22	127	227	24	62	48	13,442	77,597	1364	6106	10.1%	7.9%
7	4/29/03	41	168	186	160	92	59	25,051	102,648	3772	9878	15.1%	9.6%

Note:
[1]EBS: Exposure Budget Slope=611 ng/m^3-day
NC = Not Calculated

Air Sampling Status

New Bedford Harbor Superfund Site

Station #: AQ Site 03 - N Side of CDF
Exposure Budget Slope (EBS) = 611 ng/m^3-day

Collection Date: 4/29/03

Construction Activity: North of Wood Street Remediation Work Effort

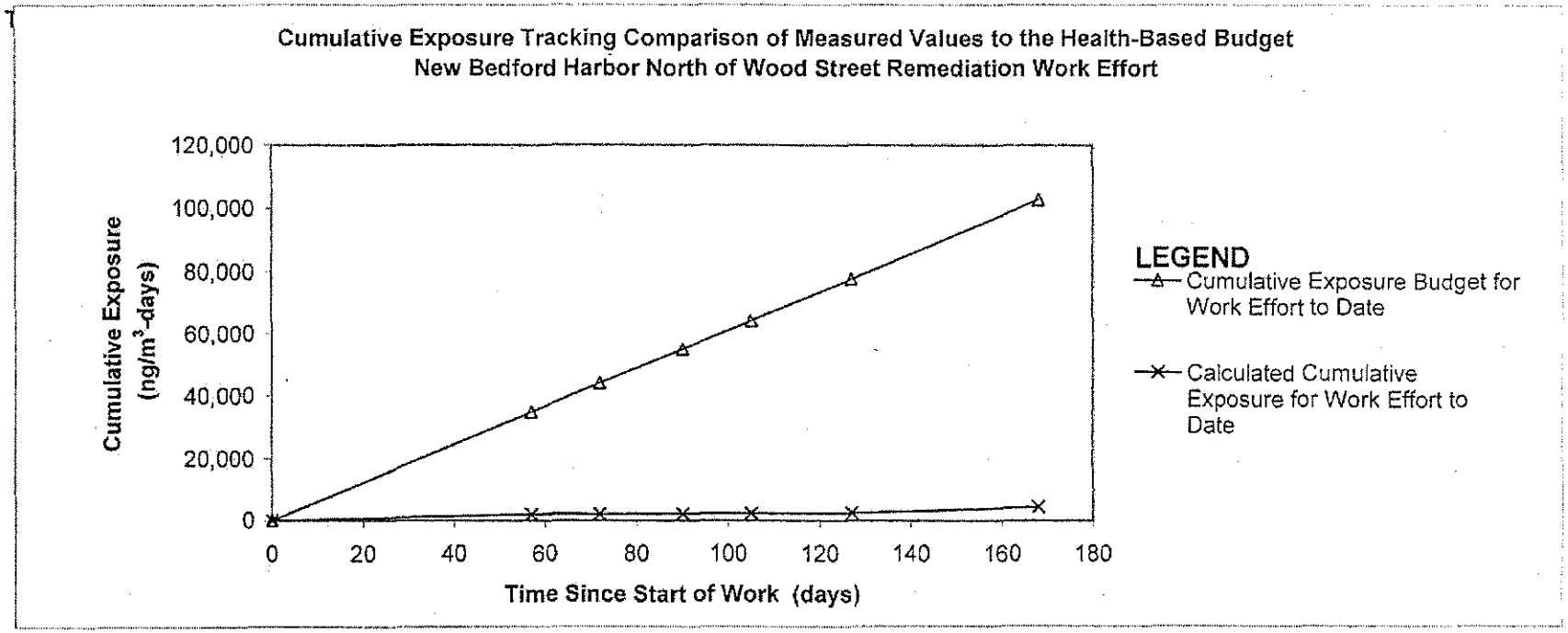
This report summarizes sample results for the above referenced location and date. The samples were collected on polyurethane foam (PUF)/XAD sample media with a glass fiber pre-filter using a PS-1 HI-Vol sampler. The samples were analyzed using high-resolution mass spectrometry (HRGCMS) for total PCB homologue groups. Results are evaluated relative to the Exposure Budget Tracking Process described in the Development of PCB Air Action Levels for the Protection of the Public, New Bedford Superfund Site, August 2001. Cumulative data for this reporting period are included on pages 2 and 3. Sample Station Information is summarized in attached Table 1 and illustrated on Figure 1. Air concentration trigger information is presented in attached Table 2.

Summary of This Sampling Period:

No exposure or concentration triggers were identified during this sampling period. Based on these results, no change in field procedures is warranted.

Air Sampling Status Report

Sample Station :	AQ Site 03 - N Side of CDF
Collection Date:	4/29/03
Measured PCB Concentration (ng/m^3):	81
Exposure Budget Expended During This Period:	7.9%
Cumulative Exposure Budget Expended to Date:	4.2%
Response Level:	No Triggers Identified
Response:	No Response Necessary



Sample Results, Calculated Budget and Exposure Values

AQ Site 03 - N Side of CDF Air Sampling Station
NBH North of Wood Street Remediation Work Effort
Ambient Air Sampling

(A) Event	(B) Sampling Date	(C) Days Since Previous Sampling Event	(D) Work Effort Elapsed Time	(E) Estimated Work Effort Remaning	(F) PCB Concentration Result	(G) Average of Most Recent Two Concentration Results	(H) Weighted Average of Concentration Results	(I) Exposure Budget for the Period	(J) Cumulative Exposure Budget for Work Effort to Date	(K) Measured Exposure During the Period	(L) Calculated Cumulative Exposure for Work Effort to Date	(M) Exposure Budget Expended During the Period	(N) Cumulative Exposure Expended for Work Effort to Date
[#]	[month/day/year]	[days]	Sum of Column (C) to Date [days]	[days]	[ng/m^3]	[ng/m^3]	Column (L)/Column (D) [ng/m^3]	EBS[1] * Column (C) [ng/m^3-days]	Sum of Column (I) [ng/m^3-days]	Column (G)* Column (C) [ng/m^3-days]	Sum of Column (K) [ng/m^3-days]	Column (K) /Column (I) [%]	Column (L) /Column (J) [%]
1	11/12/02	0	0	354	59	59	59	NC	NC	NC	NC	NC	NC
2	1/8/03	57	57	297	8.1	34	34	34,827	34,827	1912	1912	5.5%	5.5%
3	1/23/03	15	72	282	0.32	4.2	27	9,165	43,992	63	1976	0.7%	4.5%
4	2/10/03	18	90	264	14	7.2	23	10,998	54,990	129	2104	1.2%	3.8%
5	2/25/03	15	105	249	0.76	7.4	21	9,165	64,155	111	2215	1.2%	3.5%
6	3/19/03	22	127	227	15	7.9	19	13,442	77,597	173	2388	1.3%	3.1%
7	4/29/03	41	168	186	81	48.0	26	25,051	102,648	1968	4356	7.9%	4.2%

Note:
[1]EBS: Exposure Budget Slope=611 ng/m^3-day
NC = Not Calculated

Air Sampling Status

New Bedford Harbor Superfund Site

Station #: AQ Site 06 - W Side of CDF
Exposure Budget Slope (EBS) = 611 ng/m^3-day

Collection Date: 4/29/03

Construction Activity: North of Wood Street Remediation Work Effort

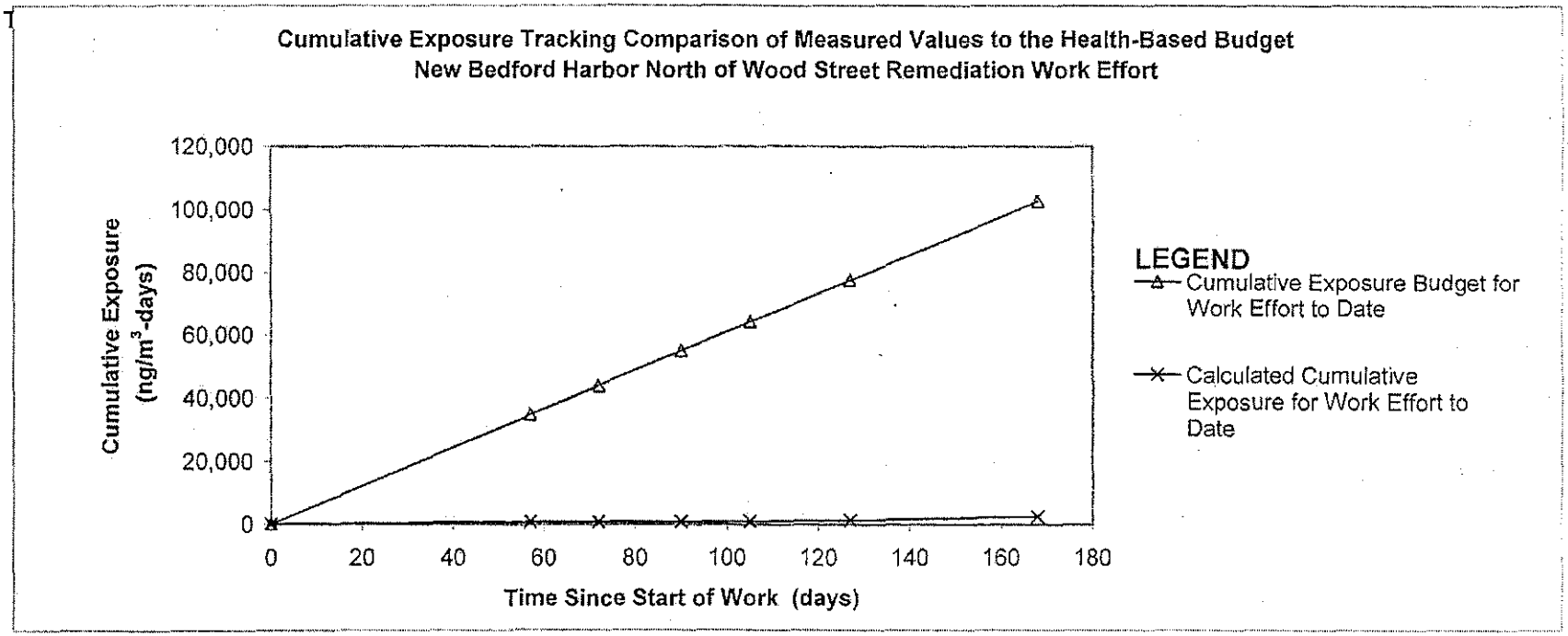
This report summarizes sample results for the above referenced location and date. The samples were collected on polyurethane foam (PUF)/XAD sample media with a glass fiber pre-filter using a PS-1 HI-Vol sampler. The samples were analyzed using high-resolution mass spectrometry (HRGCMS) for total PCB homologue groups. Results are evaluated relative to the Exposure Budget Tracking Process described in the Development of PCB Air Action Levels for the Protection of the Public, New Bedford Superfund Site, August 2001. Cumulative data for this reporting period are included on pages 2 and 3. Sample Station Information is summarized in attached Table 1 and illustrated on Figure 1. Air concentration trigger information is presented in attached Table 2.

Summary of This Sampling Period:

No exposure or concentration triggers were identified during this sampling period. Based on these results, no change in field procedures is warranted.

Air Sampling Status Report

Sample Station :	AQ Site 06 - W Side of CDF
Collection Date:	4/29/03
Measured PCB Concentration (ng/m^3):	20
Exposure Budget Expended During This Period:	4.5%
Cumulative Exposure Budget Expended to Date:	2.3%
Response Level:	No Triggers Identified
Response:	No Response Necessary



Sample Results, Calculated Budget and Exposure Values

AQ Site 06 - W Side of CDF Air Sampling Station
NBH North of Wood Street Remediation Work Effort
Ambient Air Sampling

(A) Event	(B) Sampling Date	(C) Days Since Previous Sampling Event	(D) Work Effort Elapsed Time	(E) Estimated Work Effort Remaning	(F) PCB Concentration Result	(G) Average of Most Recent Two Concentration Results	(H) Weighted Average of Concentration Results	(I) Exposure Budget for the Period	(J) Cumulative Exposure Budget for Work Effort to Date	(K) Measured Exposure During the Period	(L) Calculated Cumulative Exposure for Work Effort to Date	(M) Exposure Budget Expended During the Period	(N) Cumulative Exposure Expended for Work Effort to Date
[#]	[month/day/year]	[days]	Sum of Column (C) to Date [days]	[days]	[ng/m^3]	[ng/m^3]	Column (L)/Column (D) [ng/m^3]	EBS[1] * Column (C) [ng/m^3-days]	Sum of Column (I) [ng/m^3-days]	Column (G)* Column (C) [ng/m^3-days]	Sum of Column (K) [ng/m^3-days]	Column (K) /Column (I) [%]	Column (L) /Column (J) [%]
1	11/12/02	0	0	354	24	24	24	NC	NC	NC	NC	NC	NC
2	1/8/03	57	57	297	2.5	13	13	34,827	34,827	755	755	2.2%	2.2%
3	1/23/03	15	72	282	0.46	1.5	11	9,165	43,992	22	777	0.2%	1.8%
4	2/10/03	18	90	264	3.7	2.1	9	10,998	54,990	37	815	0.3%	1.5%
5	2/25/03	15	105	249	0.81	2.3	8	9,165	64,155	34	849	0.4%	1.3%
6	3/19/03	22	127	227	35	17.9	10	13,442	77,597	394	1243	2.9%	1.6%
7	4/29/03	41	168	186	20	27.5	14	25,051	102,648	1128	2370	4.5%	2.3%

Note:
[1]EBS: Exposure Budget Slope=611 ng/m^3-day
NC = Not Calculated

Air Sampling Status

New Bedford Harbor Superfund Site

Station #: AQ Site 28 - 20 Main Street
Exposure Budget Slope (EBS) = 388 ng/m^3-day

Collection Date: 2/25/03

Construction Activity: North of Wood Street Remediation Work Effort

This report summarizes sample results for the above referenced location and date. The samples were collected on polyurethane foam (PUF)/XAD sample media with a glass fiber pre-filter using a PS-1 HI-Vol sampler. The samples were analyzed using high-resolution mass spectrometry (HRGCMS) for total PCB homologue groups. Results are evaluated relative to the Exposure Budget Tracking Process described in the Development of PCB Air Action Levels for the Protection of the Public, New Bedford Superfund Site, August 2001. Cumulative data for this reporting period are included on pages 2 and 3. Sample Station Information is summarized in attached Table 1 and illustrated on Figure 1. Air concentration trigger information is presented in attached Table 2.

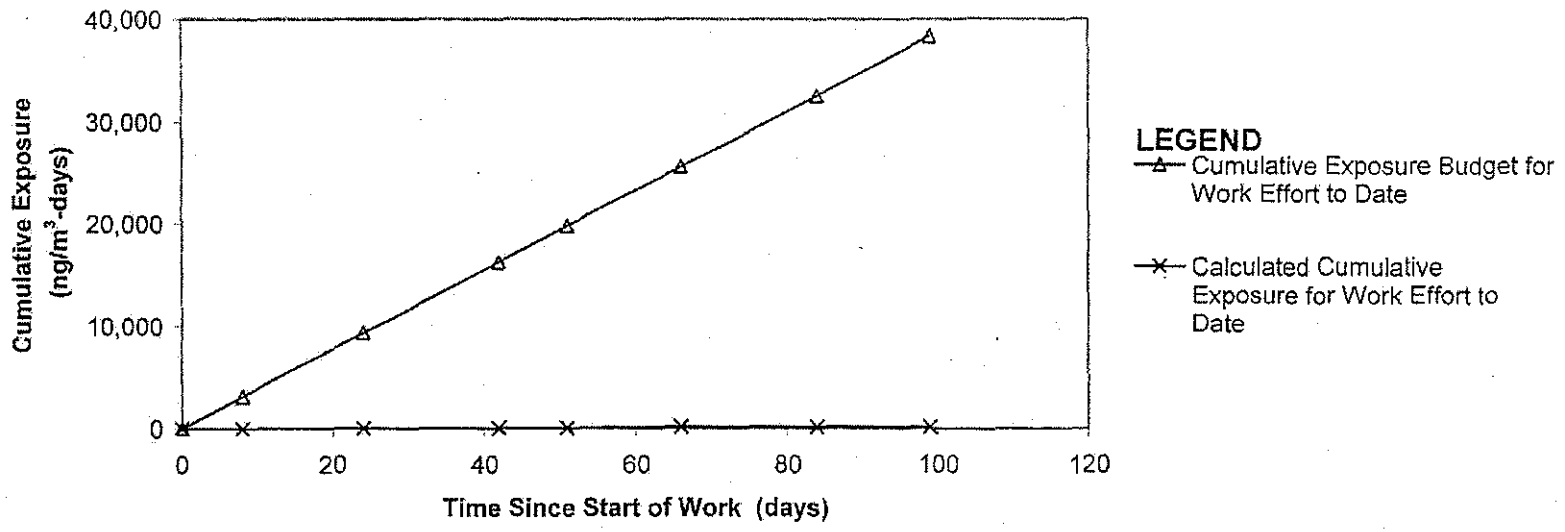
Summary of This Sampling Period:

No exposure or concentration triggers were identified during this sampling period. Based on these results, no change in field procedures is warranted.

Air Sampling Status Report

Sample Station :	AQ Site 28 - 20 Main Street
Collection Date:	2/25/03
Measured PCB Concentration (ng/m^3):	0.15
Exposure Budget Expended During This Period:	0.4%
Cumulative Exposure Budget Expended to Date:	0.4%
Response Level:	No Triggers Identified
Response:	No Response Necessary

Cumulative Exposure Tracking Comparison of Measured Values to the Health-Based Budget
New Bedford Harbor North of Wood Street Remediation Work Effort



Sample Results, Calculated Budget and Exposure Values

AQ Site 28 - 20 Main Street Air Sampling Station
NBH North of Wood Street Remediation Work Effort
Ambient Air Sampling

(A) Event	(B) Sampling Date	(C) Days Since Previous Sampling Event	(D) Work Effort Elapsed Time	(E) Estimated Work Effort Remaning	(F) PCB Concentration Result	(G) Average of Most Recent Two Concentration Results	(H) Weighted Average of Concentration Results	(I) Exposure Budget for the Period	(J) Cumulative Exposure Budget for Work Effort to Date	(K) Measured Exposure During the Period	(L) Calculated Cumulative Exposure for Work Effort to Date	(M) Exposure Budget Expended During the Period	(N) Cumulative Exposure Expended for Work Effort to Date
[#]	[month/day/year]	[days]	Sum of Column (C) to Date [days]	[days]	[ng/m^3]	[ng/m^3]	Column (L)/Column (D) [ng/m^3]	EBS[1] * Column (C) [ng/m^3-days]	Sum of Column (I) [ng/m^3-days]	Column (G)* Column (C) [ng/m^3-days]	Sum of Column (K) [ng/m^3-days]	Column (K) /Column (I) [%]	Column (L) /Column (J) [%]
1	11/18/02	0	0	103	0.57	0.57	0.57	NC	NC	NC	NC	NC	NC
2	11/26/02	8	8	95	0.62	0.60	0.60	3,101	3,101	4.8	4.8	0.2%	0.2%
3	12/12/02	16	24	79	0.72	0.67	0.65	6,202	9,302	10.7	15.5	0.2%	0.2%
4	12/30/02	18	42	61	0.51	0.62	0.63	6,977	16,279	11.1	26.6	0.2%	0.2%
5	1/8/03	9	51	52	6.5	3.51	1.14	3,488	19,768	31.5	58.1	0.9%	0.3%
6	1/23/03	15	66	37	0.21	3.36	1.84	5,814	25,582	50.3	108.4	0.9%	0.4%
7	2/10/03	18	84	19	2.6	1.41	1.59	6,977	32,558	25.3	133.7	0.4%	0.4%
8	2/25/03	15	99	4	0.15	1.38	1.56	5,814	38,372	20.6	154.3	0.4%	0.4%

Note:
[1]EBS: Exposure Budget Slope=388 ng/m^3-day
NC = Not Calculated

Air Sampling Status

New Bedford Harbor Superfund Site

Station #: AQ Site 31 - Acushnet Park
Exposure Budget Slope (EBS) = 388 ng/m^3-day

Collection Date: 2/25/03

Construction Activity: North of Wood Street Remediation Work Effort

This report summarizes sample results for the above referenced location and date. The samples were collected on polyurethane foam (PUF)/XAD sample media with a glass fiber pre-filter using a PS-1 HI-Vol sampler. The samples were analyzed using high-resolution mass spectrometry (HRGCMS) for total PCB homologue groups. Results are evaluated relative to the Exposure Budget Tracking Process described in the Development of PCB Air Action Levels for the Protection of the Public, New Bedford Superfund Site, August 2001. Cumulative data for this reporting period are included on pages 2 and 3. Sample Station Information is summarized in attached Table 1 and illustrated on Figure 1. Air concentration trigger information is presented in attached Table 2.

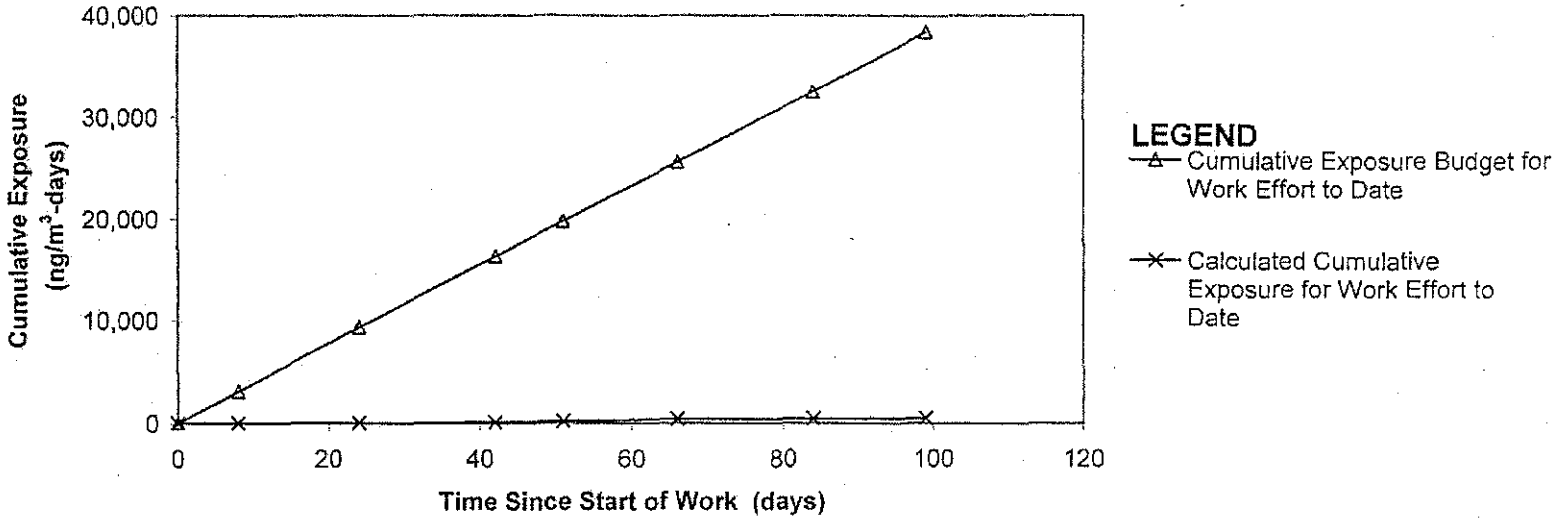
Summary of This Sampling Period:

No exposure or concentration triggers were identified during this sampling period. Based on these results, no change in field procedures is warranted.

Air Sampling Status Report

Sample Station :	AQ Site 31 - Acushnet Park
Collection Date:	2/25/03
Measured PCB Concentration (ng/m^3):	1.4
Exposure Budget Expended During This Period:	0.8%
Cumulative Exposure Budget Expended to Date:	1.3%
Response Level:	No Triggers Identified
Response:	No Response Necessary

Cumulative Exposure Tracking Comparison of Measured Values to the Health-Based Budget
New Bedford Harbor North of Wood Street Remediation Work Effort



Sample Results, Calculated Budget and Exposure Values

AQ Site 31 - Acushnet Park Air Sampling Station
NBH North of Wood Street Remediation Work Effort
Ambient Air Sampling

(A) Event	(B) Sampling Date	(C) Days Since Previous Sampling Event	(D) Work Effort Elapsed Time	(E) Estimated Work Effort Remaning	(F) PCB Concentration Result	(G) Average of Most Recent Two Concentration Results	(H) Weighted Average of Concentration Results	(I) Exposure Budget for the Period	(J) Cumulative Exposure Budget for Work Effort to Date	(K) Measured Exposure During the Period	(L) Calculated Cumulative Exposure for Work Effort to Date	(M) Exposure Budget Expended During the Period	(N) Cumulative Exposure Expended for Work Effort to Date
[#]	[month/day/year]	[days]	Sum of Column (C) to Date [days]	[days]	[ng/m^3]	[ng/m^3]	Column (L)/Column (D) [ng/m^3]	EBS[1] * Column (C) [ng/m^3-days]	Sum of Column (I) [ng/m^3-days]	Column (G)* Column (C) [ng/m^3-days]	Sum of Column (K) [ng/m^3-days]	Column (K) /Column (I) [%]	Column (L) /Column (J) [%]
1	11/18/02	0	0	103	3.4	3.4	3.4	NC	NC	NC	NC	NC	NC
2	11/26/02	8	8	95	1.5	2.5	2.5	3,101	3,101	19.6	19.6	0.6%	0.6%
3	12/12/02	16	24	79	2.9	2.2	2.3	6,202	9,302	35.2	54.8	0.6%	0.6%
4	12/30/02	18	42	61	1.4	2.2	2.2	6,977	16,279	38.7	93.5	0.6%	0.6%
5	1/8/03	9	51	52	21	11.2	3.8	3,488	19,768	100.8	194.3	2.9%	1.0%
6	1/23/03	15	66	37	2.7	11.9	5.6	5,814	25,582	177.8	372.1	3.1%	1.5%
7	2/10/03	18	84	19	4.6	3.7	5.2	6,977	32,558	65.7	437.8	0.9%	1.3%
8	2/25/03	15	99	4	1.4	3.0	4.9	5,814	38,372	45.0	482.8	0.8%	1.3%

Note:
[1]EBS: Exposure Budget Slope=388 ng/m^3-day
NC = Not Calculated

Air Sampling Status

New Bedford Harbor Superfund Site

Station #: AQ Site 32 - Former Lumberyard
Exposure Budget Slope (EBS) = 388 ng/m^3-day

Collection Date: 2/25/03

Construction Activity: North of Wood Street Remediation Work Effort

This report summarizes sample results for the above referenced location and date. The samples were collected on polyurethane foam (PUF)/XAD sample media with a glass fiber pre-filter using a PS-1 HI-Vol sampler. The samples were analyzed using high-resolution mass spectrometry (HRGCMS) for total PCB homologue groups. Results are evaluated relative to the Exposure Budget Tracking Process described in the Development of PCB Air Action Levels for the Protection of the Public, New Bedford Superfund Site, August 2001. Cumulative data for this reporting period are included on pages 2 and 3. Sample Station Information is summarized in attached Table 1 and illustrated on Figure 1. Air concentration trigger information is presented in attached Table 2.

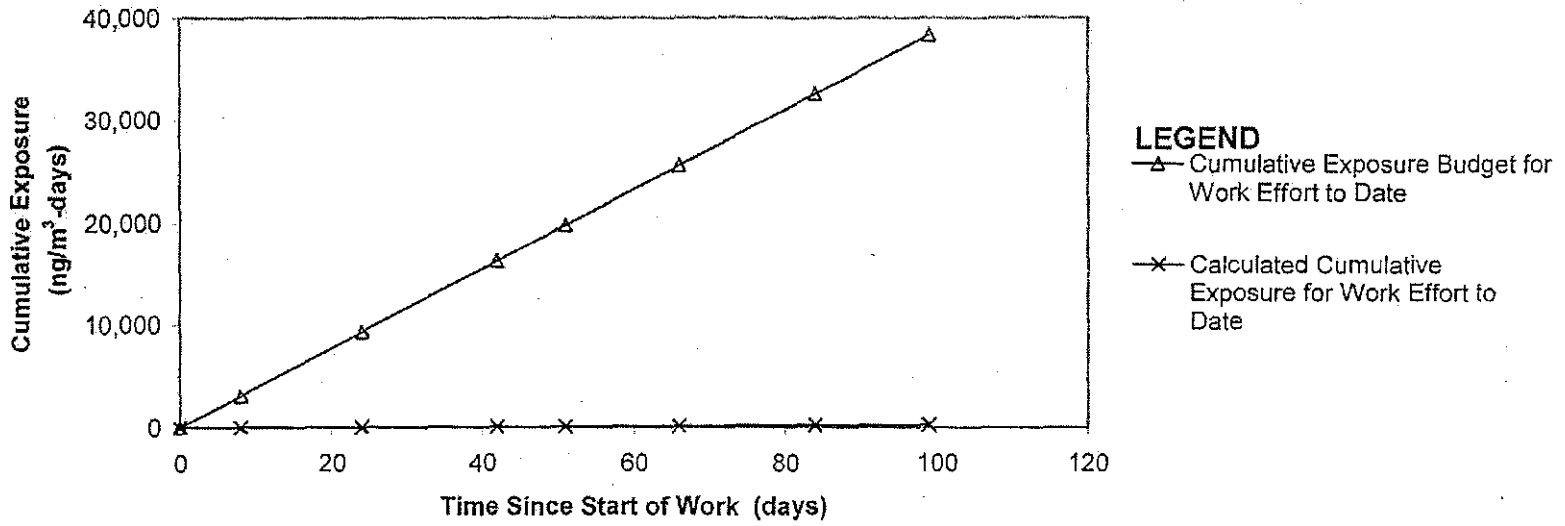
Summary of This Sampling Period:

No exposure or concentration triggers were identified during this sampling period. Based on these results, no change in field procedures is warranted.

Air Sampling Status Report

Sample Station :	AQ Site 32 - Former Lumberyard
Collection Date:	2/25/03
Measured PCB Concentration (ng/m^3):	0.28
Exposure Budget Expended During This Period:	0.7%
Cumulative Exposure Budget Expended to Date:	0.7%
Response Level:	No Triggers Identified
Response:	No Response Necessary

Cumulative Exposure Tracking Comparison of Measured Values to the Health-Based Budget
New Bedford Harbor North of Wood Street Remediation Work Effort



Sample Results, Calculated Budget and Exposure Values

AQ Site 32 - Former Lumberyard Air Sampling Station
NBH North of Wood Street Remediation Work Effort
Ambient Air Sampling

(A) Event	(B) Sampling Date	(C) Days Since Previous Sampling Event	(D) Work Effort Elapsed Time	(E) Estimated Work Effort Remaning	(F) PCB Concentration Result	(G) Average of Most Recent Two Concentration Results	(H) Weighted Average of Concentration Results	(I) Exposure Budget for the Period	(J) Cumulative Exposure Budget for Work Effort to Date	(K) Measured Exposure During the Period	(L) Calculated Cumulative Exposure for Work Effort to Date	(M) Exposure Budget Expended During the Period	(N) Cumulative Exposure Expended for Work Effort to Date
[#]	[month/day/year]	[days]	Sum of Column (C) to Date [days]	[days]	[ng/m^3]	[ng/m^3]	Column (L)/Column (D) [ng/m^3]	EBS[1] * Column (C) [ng/m^3-days]	Sum of Column (I) [ng/m^3-days]	Column (G)* Column (C) [ng/m^3-days]	Sum of Column (K) [ng/m^3-days]	Column (K) /Column (I) [%]	Column (L) /Column (J) [%]
1	11/18/02	0	0	103	0.77	0.77	0.77	NC	NC	NC	NC	NC	NC
2	11/26/02	8	8	95	0.88	0.8	0.8	3,101	3,101	6.6	6.6	0.2%	0.2%
3	12/12/02	16	24	79	1.6	1.2	1.1	6,202	9,302	19.8	26.4	0.3%	0.3%
4	12/30/02	18	42	61	1.7	1.7	1.3	6,977	16,279	29.7	56.1	0.4%	0.3%
5	1/8/03	9	51	52	7.7	4.7	1.9	3,488	19,768	42.3	98.4	1.2%	0.5%
6	1/23/03	15	66	37	0.3	4.0	2.4	5,814	25,582	60.0	158.4	1.0%	0.6%
7	2/10/03	18	84	19	5.4	2.9	2.5	6,977	32,558	51.3	209.7	0.7%	0.6%
8	2/25/03	15	99	4	0.28	2.8	2.5	5,814	38,372	42.6	252.3	0.7%	0.7%

Note:
[1]EBS: Exposure Budget Slope=388 ng/m^3-day
NC = Not Calculated

2003-024-0048
10/6/03

Air Sampling Status

New Bedford Harbor Superfund Site

Station #: AQ Site 33 - Wood Street Bridge
Exposure Budget Slope (EBS) = 388 ng/m^3-day

Collection Date: 12/30/02

Construction Activity: North of Wood Street Remediation Work Effort

This report summarizes sample results for the above referenced location and date. The samples were collected on polyurethane foam (PUF)/XAD sample media with a glass fiber pre-filter using a PS-1 HI-Vol sampler. The samples were analyzed using high-resolution mass spectrometry (HRGCMS) for total PCB homologue groups. Results are evaluated relative to the Exposure Budget Tracking Process described in the Development of PCB Air Action Levels for the Protection of the Public, New Bedford Superfund Site, August 2001. Cumulative data for this reporting period are included on pages 2 and 3. Sample Station Information is summarized in attached Table 1 and illustrated on Figure 1. Air concentration trigger information is presented in attached Table 2.

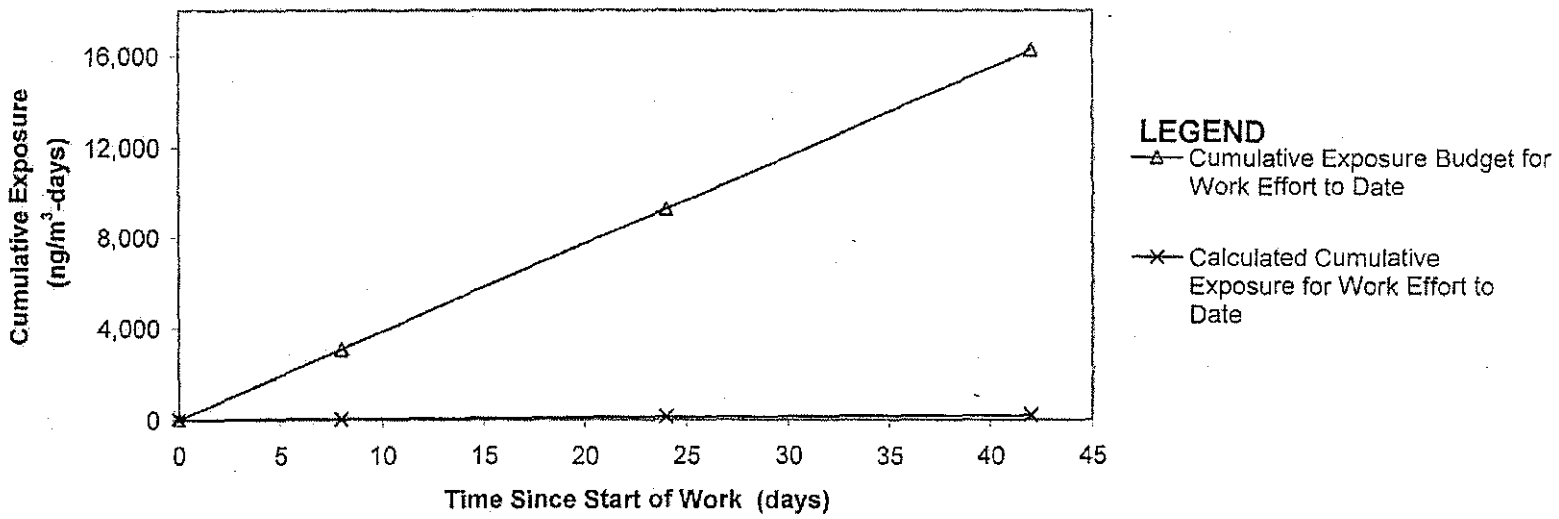
Summary of This Sampling Period:

No exposure or concentration triggers were identified during this sampling period. Based on these results, no change in field procedures is warranted.

Air Sampling Status Report

Sample Station :	AQ Site 33 - Wood Street Bridge
Collection Date:	12/30/02
Measured PCB Concentration (ng/m^3):	1.9
Exposure Budget Expended During This Period:	1.0%
Cumulative Exposure Budget Expended to Date:	1.2%
Response Level:	No Triggers Identified
Response:	No Response Necessary

Cumulative Exposure Tracking Comparison of Measured Values to the Health-Based Budget
New Bedford Harbor North of Wood Street Remediation Work Effort



Sample Results, Calculated Budget and Exposure Values

AQ Site 33 - Wood Street Bridge Air Sampling Station
NBH North of Wood Street Remediation Work Effort
Ambient Air Sampling

(A) Event	(B) Sampling Date	(C) Days Since Previous Sampling Event	(D) Work Effort Elapsed Time	(E) Estimated Work Effort Remaning	(F) PCB Concentration Result	(G) Average of Most Recent Two Concentration Results	(H) Weighted Average of Concentration Results	(I) Exposure Budget for the Period	(J) Cumulative Exposure Budget for Work Effort to Date	(K) Measured Exposure During the Period	(L) Calculated Cumulative Exposure for Work Effort to Date	(M) Exposure Budget Expended During the Period	(N) Cumulative Exposure Expended for Work Effort to Date
[#]	[month/day/year]	[days]	Sum of Column (C) to Date [days]	[days]	[ng/m^3]	[ng/m^3]	Column (L)/Column (D) [ng/m^3]	EBS[1] * Column (C) [ng/m^3-days]	Sum of Column (I) [ng/m^3-days]	Column (G)* Column (C) [ng/m^3-days]	Sum of Column (K) [ng/m^3-days]	Column (K) /Column (I) [%]	Column (L) /Column (J) [%]
1	11/18/02	0	0	181	4.2	4.2	4.2	NC	NC	NC	NC	NC	NC
2	11/26/02	8	8	173	5.5	4.9	4.9	3,101	3,101	38.8	38.8	1.3%	1.3%
3	12/12/02	16	24	157	6.0	5.8	5.5	6,202	9,302	92.0	130.8	1.5%	1.4%
4	12/30/02	18	42	139	1.9	4.0	4.8	6,977	16,279	71.1	201.9	1.0%	1.2%

Note:
[1]EBS: Exposure Budget Slope=388 ng/m^3-day
NC = Not Calculated

Air Sampling Status

New Bedford Harbor Superfund Site

Station #: AQ Site 34 - Titleist Parking Lot
Exposure Budget Slope (EBS) = 388 ng/m^3-day

Collection Date: 2/25/03

Construction Activity: North of Wood Street Remediation Work Effort

This report summarizes sample results for the above referenced location and date. The samples were collected on polyurethane foam (PUF)/XAD sample media with a glass fiber pre-filter using a PS-1 HI-Vol sampler. The samples were analyzed using high-resolution mass spectrometry (HRGCMS) for total PCB homologue groups. Results are evaluated relative to the Exposure Budget Tracking Process described in the Development of PCB Air Action Levels for the Protection of the Public, New Bedford Superfund Site, August 2001. Cumulative data for this reporting period are included on pages 2 and 3. Sample Station Information is summarized in attached Table 1 and illustrated on Figure 1. Air concentration trigger information is presented in attached Table 2.

Summary of This Sampling Period:

No exposure or concentration triggers were identified during this sampling period. Based on these results, no change in field procedures is warranted.

Air Sampling Status Report

Sample Station :	AQ Site 34 - Titleist Parking Lot
Collection Date:	2/25/03
Measured PCB Concentration (ng/m^3):	1.8
Exposure Budget Expended During This Period:	1.0%
Cumulative Exposure Budget Expended to Date:	1.8%
Response Level:	No Triggers Identified
Response:	No Response Necessary

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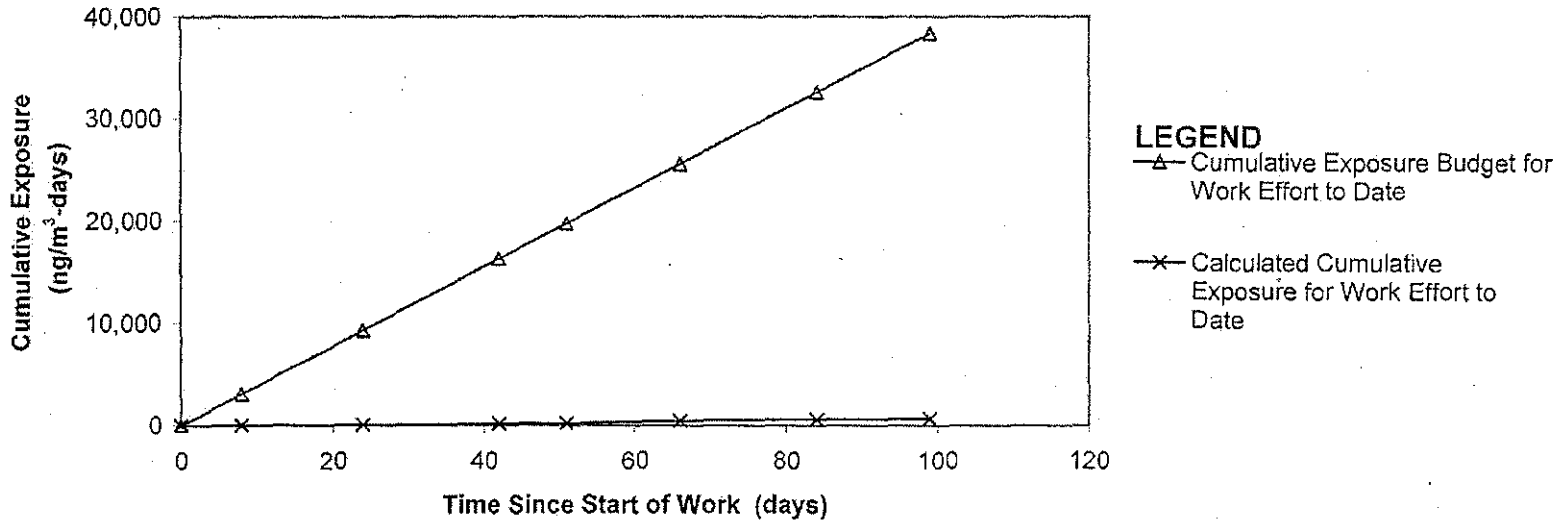
Cumulative Exposure Tracking Comparison of Measured Values to the Health-Based Budget
New Bedford Harbor North of Wood Street Remediation Work Effort



Sample Results, Calculated Budget and Exposure Values

AQ Site 34 - Titleist Parking Lot Air Sampling Station
NBH North of Wood Street Remediation Effort
Ambient Air Sampling

(A) Event	(B) Sampling Date	(C) Days Since Previous Sampling Event	(D) Work Effort Elapsed Time	(E) Estimated Work Effort Remaning	(F) PCB Concentration Result	(G) Average of Most Recent Two Concentration Results	(H) Weighted Average of Concentration Results	(I) Exposure Budget for the Period	(J) Cumulative Exposure Budget for Work Effort to Date	(K) Measured Exposure During the Period	(L) Calculated Cumulative Exposure for Work Effort to Date	(M) Exposure Budget Expended During the Period	(N) Cumulative Exposure Expended for Work Effort to Date
[#]	[month/day/year]	[days]	Sum of Column (C) to Date [days]	[days]	[ng/m^3]	[ng/m^3]	Column (L)/Column (D) [ng/m^3]	EBS[1] * Column (C) [ng/m^3-days]	Sum of Column (I) [ng/m^3-days]	Column (G)* Column (C) [ng/m^3-days]	Sum of Column (K) [ng/m^3-days]	Column (K) /Column (I) [%]	Column (L) /Column (J) [%]
1	11/18/02	0	0	103	5.2	5.2	5.2	NC	NC	NC	NC	NC	NC
2	11/26/02	8	8	95	3.4	4.3	4.3	3,101	3,101	34.4	34.4	1.1%	1.1%
3	12/12/02	16	24	79	5.0	4.2	4.2	6,202	9,302	67.2	101.6	1.1%	1.1%
4	12/30/02	18	42	61	1.8	3.4	3.9	6,977	16,279	61.2	162.8	0.9%	1.0%
5	1/8/03	9	51	52	16.0	8.9	4.8	3,488	19,768	80.1	242.9	2.3%	1.2%
6	1/23/03	15	66	37	13.0	14.5	7.0	5,814	25,582	217.5	460.4	3.7%	1.8%
7	2/10/03	18	84	19	6.0	9.5	7.5	6,977	32,558	171.0	631.4	2.5%	1.9%
8	2/25/03	15	99	4	1.8	3.9	7.0	5,814	38,372	58.6	689.9	1.0%	1.8%

Note:
[1]EBS: Exposure Budget Slope=388 ng/m^3-day
NC = Not Calculated

Air Sampling Status

New Bedford Harbor Superfund Site

Station #: AQ Site 37 - South of CSO
Exposure Budget Slope (EBS) = 388 ng/m^3-day

Collection Date: 2/25/03

Construction Activity: North of Wood Street Remediation Work Effort

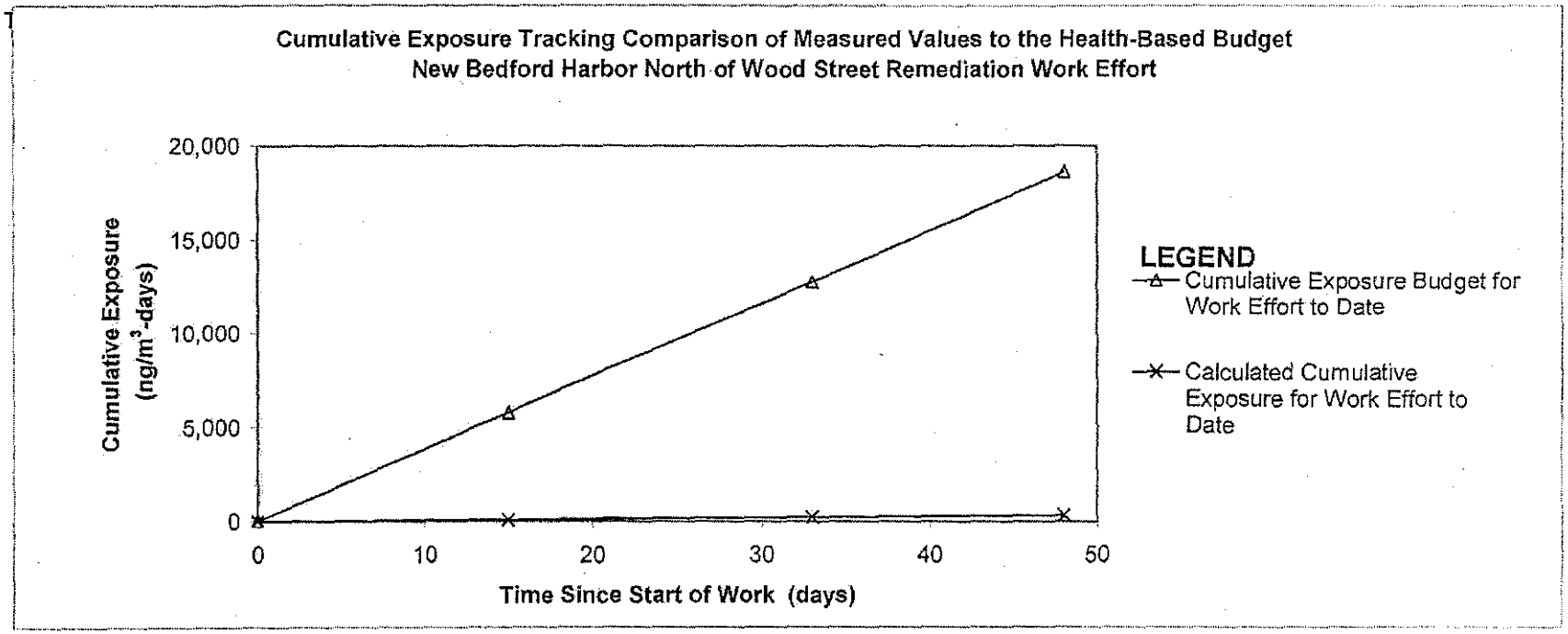
This report summarizes sample results for the above referenced location and date. The samples were collected on polyurethane foam (PUF)/XAD sample media with a glass fiber pre-filter using a PS-1 HI-Vol sampler. The samples were analyzed using high-resolution mass spectrometry (HRGCMS) for total PCB homologue groups. Results are evaluated relative to the Exposure Budget Tracking Process described in the Development of PCB Air Action Levels for the Protection of the Public, New Bedford Superfund Site, August 2001. Cumulative data for this reporting period are included on pages 2 and 3. Sample Station Information is summarized in attached Table 1 and illustrated on Figure 1. Air concentration trigger information is presented in attached Table 2.

Summary of This Sampling Period:

No exposure or concentration triggers were identified during this sampling period. Based on these results, no change in field procedures is warranted.

Air Sampling Status Report

Sample Station :	AQ Site 37 - South of CSO
Collection Date:	2/25/03
Measured PCB Concentration (ng/m^3):	0.83
Exposure Budget Expended During This Period:	1.7%
Cumulative Exposure Budget Expended to Date:	1.7%
Response Level:	No Triggers Identified
Response:	No Response Necessary



Sample Results, Calculated Budget and Exposure Values

AQ Site 37 - South of CSO Air Sampling Station
NBH North of Wood Street Remediation Work Effort
Ambient Air Sampling

(A) Event	(B) Sampling Date	(C) Days Since Previous Sampling Event	(D) Work Effort Elapsed Time	(E) Estimated Work Effort Remaning	(F) PCB Concentration Result	(G) Average of Most Recent Two Concentration Results	(H) Weighted Average of Concentration Results	(I) Exposure Budget for the Period	(J) Cumulative Exposure Budget for Work Effort to Date	(K) Measured Exposure During the Period	(L) Calculated Cumulative Exposure for Work Effort to Date	(M) Exposure Budget Expended During the Period	(N) Cumulative Exposure Expended for Work Effort to Date
[#]	[month/day/year]	[days]	Sum of Column (C) to Date [days]	[days]	[ng/m^3]	[ng/m^3]	Column (L)/Column (D) [ng/m^3]	EBS[1] * Column (C) [ng/m^3-days]	Sum of Column (I) [ng/m^3-days]	Column (G)* Column (C) [ng/m^3-days]	Sum of Column (K) [ng/m^3-days]	Column (K) /Column (I) [%]	Column (L) /Column (J) [%]
1	1/8/03	0	0	52	8.7	8.7	8.7	NC	NC	NC	NC	NC	NC
2	1/23/03	15	15	37	2.5	5.6	5.6	5,814	5,814	84	84	1.4%	1.4%
3	2/10/03	18	33	19	12	7.3	8.5	6,977	12,791	131	215	1.9%	1.7%
4	2/25/03	15	48	4	0.83	6.4	6.5	5,814	18,605	96	311	1.7%	1.7%

Note:
[1]EBS: Exposure Budget Slope=388 ng/m^3-day
NC = Not Calculated

Table 1 Summary of Sample Station Information

Station #	Location Name	Exposure Budget Slope (EBS)	Basis for EBS	Baseline Concentration	Basis for Baseline
AQ Site 02	E Side of CDF	611 ng/m^3	Commercial Worker	49 ng/m^3	Apr. 1999 - Apr. 2000 AQ Site 26 Annual Baseline Sampling
AQ Site 03	N Side of CDF	611 ng/m^3	Commercial Worker	49 ng/m^3	Apr. 1999 - Apr. 2000 AQ Site 26 Annual Baseline Sampling
AQ Site 06	W Side of CDF	611 ng/m^3	Commercial Worker	49 ng/m^3	Apr. 1999 - Apr. 2000 AQ Site 26 Annual Baseline Sampling
AQ Site 17	S Side of CDF	611 ng/m^3	Commercial Worker	49 ng/m^3	Apr. 1999 - Apr. 2000 AQ Site 26 Annual Baseline Sampling
AQ Site 28	20 Main Street	388 ng/m^3	Residential	21 ng/m^3	July 2000 AQ Site 28 Baseline Sampling
AQ Site 31	Acushnet Park	388 ng/m^3	Residential	21 ng/m^3	July 2000 AQ Site 28 Baseline Sampling
AQ Site 32	Former Lumberyard	388 ng/m^3	Residential	21 ng/m^3	July 2000 AQ Site 28 Baseline Sampling
AQ Site 33	Wood Street Bridge	388 ng/m^3	Residential	21 ng/m^3	July 2000 AQ Site 28 Baseline Sampling
AQ Site 34	Titleist Parking Lot	388 ng/m^3	Residential	21 ng/m^3	July 2000 AQ Site 28 Baseline Sampling
AQ Site 35	Marine Hydraulics	651 ng/m^3	Commercial Worker	9.4 ng/m^3	Apr. 1999 - Apr. 2000 AQ Site 21 Annual Baseline Sampling
AQ Site 36	Hervey Tichon Ave.	651 ng/m^3	Commercial Worker	9.4 ng/m^3	Apr. 1999 - Apr. 2000 AQ Site 21 Annual Baseline Sampling
AQ Site 37	S of CSO	388 ng/m^3	Residential	21 ng/m^3	July 2000 AQ Site 28 Baseline Sampling

Table 2 Summary of Triggers

	Triggers	Response Level	Response	Description of Condition
Concentration Trigger	C1	Low	Evaluate the cause and significance of the triggering conditions	Measured concentration exceeds Occupational Limit of 1000 ng/m3
	C2	Low	Evaluate the cause and significance of the triggering conditions	Measured concentration exceeds minimum NTEL (1769 ng/m3) or TEL (50000 ng/m3) for a worker in the public
	C3	Low	Evaluate the cause and significance of the triggering conditions	Measured concentration exceeds the risk-based Exposure Point Concentration (see Table 1) forming the basis of the Cumulative Exposure Budget line
	C4	No Response needed unless condition occurs in combination with C8		Measured concentration exceeds the Annual Average Baseline Concentration by more than 100% but less than 200%
	C5	Low	Evaluate the cause and significance of the triggering conditions	Measured concentration Exceeds the Annual Average Baseline Concentration by more than 200%
	C6	Low	Evaluate the cause and significance of the triggering conditions	Most recent two measured concentrations exceed the previous Running Average Concentration by more than 25%
	C7	No Response needed unless condition occurs in combination with C5		Measured concentration has doubled since the last sampling period
	C5 and C7	Low	Evaluate the cause and significance of the triggering conditions	See description of individual triggers
	C8	No Response needed unless condition occurs in combination with C1, C2, C3, C4, C5, C6 or PCE2		Measured concentration has increased for three sampling periods in a row
	C1 and C8	Medium	Consider or plan for operational adjustments or engineering control options	See description of individual triggers
	C2 and C8	Medium	Consider or plan for operational adjustments or engineering control options	See description of individual triggers
	C3 and C8	Medium	Consider or plan for operational adjustments or engineering control options	See description of individual triggers
	C4 and C8	Low	Evaluate the cause and significance of the triggering conditions	See description of individual triggers
	C5 and C8	Medium	Consider or plan for operational adjustments or engineering control options	See description of individual triggers
	C6 and C8	Medium	Consider or plan for operational adjustments or engineering control options	See description of individual triggers
Calculated Cumulative Exposure Trigger	CCE1	Low	Evaluate the cause and significance of the triggering conditions	Exceeding 75% of the Cumulative Exposure Budget now
	CCE2	Medium	Consider or plan for operational adjustments or engineering control options	Exceeding 100% of the Cumulative Exposure Budget now
	CCE3	High	Implement operational adjustments or engineering controls	Measured concentration exceeds the cumulative exposure budget for three sampling periods in a row
	CCE4	High	Implement operational adjustments or engineering controls	Cumulative exposure budget exceeded by 25% or more
Projected Cumulative Exposure Trigger	PCE1	Low	Evaluate the cause and significance of the triggering conditions	Projected Cumulative Exposure Budget at end of project will exceed based on using most recent exposure rate for the remainder of the project with 25% to 50% of the project duration remaining
	PCE2	Medium	Consider or plan for operational adjustments or engineering control options	Projected Cumulative Exposure Budget at end of project will exceed based on using most recent exposure rate for the remainder of the project with 10% to 25% of the project duration remaining
	PCE3	High	Implement operational adjustments or engineering controls	Projected Cumulative Exposure Budget at end of project exceeded based on most recent exposure rate for the remainder of the project with less than 10% of the project duration remaining
	C8 and PCE2	High	Implement operational adjustments or engineering controls	See description of individual triggers

Note:

The significance of the sample results is assessed by evaluating which triggers are present and the combination of triggers.

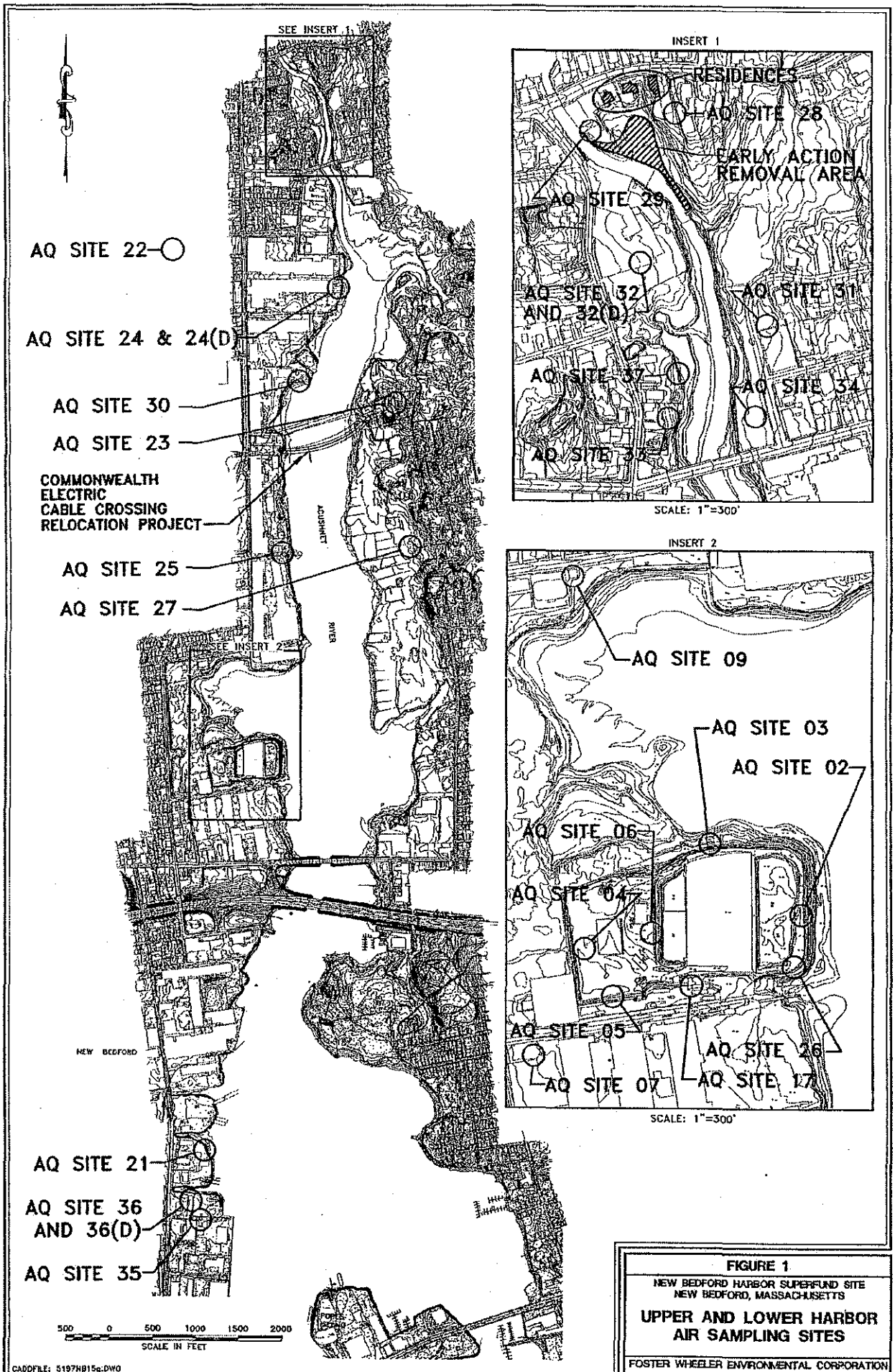


FIGURE 1

NEW BEDFORD HARBOR SUPERFUND SITE
NEW BEDFORD, MASSACHUSETTS

UPPER AND LOWER HARBOR AIR SAMPLING SITES

FOSTER WHEELER ENVIRONMENTAL CORPORATION
TERC PROGRAM

Appendix C

As-Built Drawings

Figure 1 – Sample Locations Representing Post Excavation Conditions

Figure 2 – Post Excavation As-Built Conditions (Prior to Restoration)

Figure 3 – Final Plan As-Built Conditions

Figure 4 – Site Plan Delineation of Planting Zones

814800 815000 815200 815400 815600 815800 816000

2709600 2709400 2709200 2709000 2708800 2708600 2708400 2708200

MAIN STREET
TARKILN HILL ROAD
HAMLIN STREET
HARWICH STREET
TRURO STREET
RIVER ROAD
ACUSHNET RIVER
RIVER STREET
GUILLOTTE STREET
JEAN STREET
SLOCUM STREET
WOOD STREET

This Early Action Area was remediated in 2000 and 2001. Contaminated soil and sediment above EPA's cleanup criteria were removed, and at least one foot of clean backfill was placed throughout to support plantings.

Compliance Demonstration Area #2
-Cleanup criteria prior to placement of clean backfill: 50 ppm PCBs
-Actual PCB level prior to placement of clean backfill: 4.4 ppm
-Size: 0.7 Acres
-Number of compliance samples: 48
-Assumed land use: Public Access
-See Note #5

Compliance Demonstration Area #3
-Cleanup criteria prior to placement of clean backfill: 50 ppm PCBs
-Actual PCB level prior to placement of clean backfill: 5.5 ppm
-Size: 0.3 Acres
-Number of compliance samples: 19
-Assumed land use: Public Access
-See Note #5

Compliance Demonstration Area #6
-Cleanup criteria prior to placement of clean backfill: 10 ppm PCBs
-Actual PCB level prior to placement of clean backfill: 7.0 ppm
-Size: 3.8 Acres
-Number of compliance samples: 61
-Assumed land use: Subtidal / Mudflat

Compliance Demonstration Area #1
-Cleanup criteria prior to placement of clean backfill: 50 ppm PCBs
-Actual PCB level prior to placement of clean backfill: 6.0 ppm
-Size: 0.5 Acres
-Number of compliance samples: 32
-Assumed land use: Public Access / Residential
-See Note #5

Compliance Demonstration Area #5
-Cleanup criteria prior to placement of clean backfill: 50 ppm PCBs
-Size: 0.1 Acres
-Area is a rock (riprap) slope and was not excavated or sampled.

Compliance Demonstration Area #4
-Cleanup criteria prior to placement of clean backfill: 50 ppm PCBs
-Actual PCB level prior to placement of clean backfill: 0.25 ppm
-Size: 0.1 Acres
-Number of compliance samples: 4
-Assumed land use: Public Access
-See Note #5

Area Under Berm with High PCB Reading to be Remediated in Future Operations

South Berm

Compliance Demonstration Areas
1
2
3
4
5
6

Water Lines NGVD 29 (approximate - see note #6)
Mean High Water (+2.5')
Mean Low Water (-1.32')
Topographic and Bathymetric Contours
Bridge
Buildings
Early Action Area
116-86 Parcels with Lot ID

Roads
Driveways
Post-Remediation GPS Survey

Sample Locations Used to Calculate Average CDA PCB Concentrations
Progress (P) Sampling Location
Sample Locations on Haul Road
Sample Locations Outside Excavation Area
North / South Berm Sample Locations

N

50 0 50 100 150 Feet

Notes:
1. Lot lines are based on both property survey data and assessor's maps, and in some cases may only be approximate.
2. Post-remediation GPS survey performed by Maxymillian Technologies April 2003.
3. Areas outside of the remediation area were found to be in compliance with EPA's cleanup criteria and thus did not require remediation.
4. Post remediation monitoring will continue for both PCB levels and saltmarsh restoration.
5. After excavation was completed, at least one foot of clean fill was added to support the marsh planting restoration in CDAs 1, 2, 3, and 4.
6. MLW line was taken from pre-remediation bathymetry and represents an approximation of post-cleanup conditions. Actual MHW (2.45') is approximated with the 2.5' contour taken from post-remediation GPS survey (see note 2).

TETRA TECH FW, INC

NEW BEDFORD HARBOR SUPERFUND SITE
BRISTOL COUNTY, MASSACHUSETTS

Figure 1
Sample Locations Representing Post Excavation Conditions*

* Includes only sample locations representative of current conditions and not those removed during subsequent remediation. Includes some locations not used to calculate CDA averages.

SHEET 1 of 1
APRIL 9, 2004

MA STATE PLANE
NAD 83 FEET
NGVD 29

P:\Terc-5197\NBH\GIS\WORKDIR\04-ws210690-001c.apr

LEGEND:

- EXISTING INDEX CONTOUR
- EXISTING INTERMEDIATE CONTOUR
- TREE
- TREELINE
- BUILDING
- RIVER
- EDGE OF PAVEMENT
- AS-BUILT TOPSOIL INDEX CONTOUR
- AS-BUILT TOPSOIL INTERMEDIATE CONTOUR
- SWALE
- TOE STONE
- COIR LOG
- LIMITS OF WORK

N 2709400 N 2709000 N 2708600 N 2708200

E 815800 E 815400 E 815000

REVISED LIMITS OF WORK

ORIGINAL LIMITS OF WORK

"EARLY ACTION AREA"

ORIGINAL LIMITS OF WORK

REVISED LIMITS OF WORK

CSO PIPE

NOTE:
EXISTING CONDITIONS BASE MAP TOPOGRAPHY WAS COMPILED AND CONTROLLED BY PHOTOGRAMMETRIC METHODS BY JAMES W. SEWALL, OLD TOWN MAINE, ON DECEMBER 2, 1998.

NOTES:

1. CONTOURS ARE GENERATED BY POINTS COLLECTED BY MAXYMILLIAN TECHNOLOGIES INC. BETWEEN DECEMBER, 2002, AND DECEMBER, 2003. THESE POINTS ARE FOR THE PURPOSE OF GENERATING THE AS-BUILT INFORMATION. THE POINTS WERE COLLECTED BY A TRIMBLE 4700 GLOBAL POSITIONING SYSTEM UTILIZING A REAL-TIME KINEMATIC SURVEY (RTK) POSITIONING.
2. ALL AS-BUILT INFORMATION HAS BEEN PROVIDED BY A NON-REGISTERED LAND SURVEYOR, MAXYMILLIAN TECHNOLOGIES INC.

SCALE IN FEET
1INCH = 60 FEET
HORIZONTAL DATUM IS NAD83 MASSACHUSETTS STATE PLANE
VERTICAL DATUM IS NGV029

SCALE 1"= 60'

US Army Corps of Engineers
New England District

DEC 2003

U.S. ARMY CORPS OF ENGINEERS
CONCORD, MASSACHUSETTS

FOSTER WHEELER
ENVIRONMENTAL CORP
133 FEDERAL STREET
BOSTON, MASSACHUSETTS

NEW BEDFORD HARBOR SUPERFUND SITE
NEW BEDFORD, MASSACHUSETTS
NORTH OF WOOD STREET

POST EXCAVATION
AS-BUILT CONDITIONS
(PRIOR TO RESTORATION)

FIGURE
2

LEGEND:

- EXISTING INDEX CONTOUR
- EXISTING INTERMEDIATE CONTOUR
- TREE
- TREELINE
- BUILDING
- RIVER
- EDGE OF PAVEMENT
- AS-BUILT TOPSOIL INDEX CONTOUR
- AS-BUILT TOPSOIL INTERMEDIATE CONTOUR
- SWALE
- TOE STONE
- COIR LOG
- LIMITS OF WORK

N 2709400 N 2709000 N 2708600 N 2708200

E 815800 E 815400 E 815000

GUILLOTTE STREET
JEAN STREET
SLOCUM STREET
RIVER STREET
TITLEIST PARKING LOT
WOOD STREET BRIDGE
WOOD STREET
SOUTH MAIN STREET
HAMLIN STREET
HARWICH STREET
TRURO STREET
RIVER ROAD
ACUSHNET RIVER
"EARLY ACTION AREA"
LUMBERYARD SWALE
CSO PIPE
LIMITS OF WORK
SWALE (TYP)
TOE STONE
COIR LOG
BOULDERS (TYP)
RIP-RAP

NOTE:
EXISTING CONDITIONS BASE MAP TOPOGRAPHY WAS COMPILED AND CONTROLLED BY PHOTOGRAMMETRIC METHODS BY JAMES W. SEWALL, OLD TOWN MAINE, ON DECEMBER 2, 1998.

NOTES:
1. CONTOURS ARE GENERATED BY POINTS COLLECTED BY MAXYMILLIAN TECHNOLOGIES INC. BETWEEN DECEMBER, 2002, AND DECEMBER, 2003. THESE POINTS ARE FOR THE PURPOSE OF GENERATING THE AS-BUILT INFORMATION. THE POINTS WERE COLLECTED BY A TRIMBLE 4700 GLOBAL POSITIONING SYSTEM UTILIZING A REAL-TIME KINEMATIC SURVEY (RTK) POSITIONING. THE GRADES ON THIS DRAWING ARE THE FINAL GRADES OF PLACED IMPORTED MATERIALS
2. ALL AS-BUILT INFORMATION HAS BEEN PROVIDED BY A NON-REGISTERED LAND SURVEYOR, MAXYMILLIAN TECHNOLOGIES INC.

SCALE IN FEET
1 INCH = 60 FEET
HORIZONTAL DATUM IS NAD83 MASSACHUSETTS STATE PLANE
VERTICAL DATUM IS NGVD29

30 0 60 120 FEET
SCALE 1"= 60'

US Army Corps of Engineers
New England District

Symbol	Description	Date	Appr.	Symbol	Description	Date	Appr.

Rev.	
Date: DEC 2003	Design file no.: WS2204-C-102F4.DGN
Designed by: M. OTTEN	Drawing code:
Drawn by: C. POTVIN	File name:
Reviewed by: J. FUSCONI	Plot date:
Submitted by:	Plot scales:

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
CONCORD, MASSACHUSETTS

FOSTER WHEELER ENVIRONMENTAL CORP.
133 FEDERAL STREET
BOSTON, MASSACHUSETTS

NEW BEDFORD HARBOR SUPERFUND SITE
NEW BEDFORD, MASSACHUSETTS
NORTH OF WOOD STREET

FINAL AS-BUILT CONDITIONS

FIGURE 3

LEGEND:

- EXISTING INDEX CONTOUR
- EXISTING INTERMEDIATE CONTOUR
- TREE
- TREELINE
- BUILDING
- RIVER
- EDGE OF PAVEMENT
- AS-BUILT TOPSOIL INDEX CONTOUR
- AS-BUILT TOPSOIL INTERMEDIATE CONTOUR
- SWALE
- TOE STONE
- COIR LOG
- LIMITS OF WORK
- PHRAGMITIES AREA
- LOW MARSH PLANTING AREA
- UPLAND SEED MIX AREA
- HIGH MARSH PLANTING AREA
- EARLY ACTION AREA
- MONITORING PLOT LOCATIONS (MP-27)

N 2709000 N 2708600 N 2708200

E 815800 E 815400 E 815000

GUILLOTTE STREET
JEAN STREET
SLOCUM STREET
RIVER STREET
TITLEIST PARKING LOT
WOOD STREET BRIDGE
ACUSHNET RIVER
WOOD STREET
RIVER ROAD
SOUTH MAIN STREET
HAMLIN STREET
HARWICH STREET
TRURO STREET

LIMITS OF WORK
SWALE (TYP)
TOE STONE
COIR LOG
RIP-RAP
BOULDERS (TYP)
"EARLY ACTION AREA"
LUMBERYARD SWALE
CSO PIPE

MP-12 MP-15 MP-16 MP-17 MP-18 MP-19 MP-20 MP-21 MP-22 MP-23 MP-24 MP-25 MP-26 MP-27

NOTE:
EXISTING CONDITIONS BASE MAP TOPOGRAPHY WAS COMPILED AND CONTROLLED BY PHOTOGRAMMETRIC METHODS BY JAMES W. SEWALL, OLD TOWN MAINE, ON DECEMBER 2, 1998.

NOTES:
1. CONTOURS ARE GENERATED BY POINTS COLLECTED BY MAXYMILLIAN TECHNOLOGIES INC. BETWEEN DECEMBER, 2002, AND DECEMBER, 2003. THESE POINTS ARE FOR THE PURPOSE OF GENERATING THE AS-BUILT INFORMATION. THE POINTS WERE COLLECTED BY A TRIMBLE 4700 GLOBAL POSITIONING SYSTEM UTILIZING A REAL-TIME KINEMATIC SURVEY (RTK) POSITIONING.
2. ALL AS-BUILT INFORMATION HAS BEEN PROVIDED BY A NON-REGISTERED LAND SURVEYOR, MAXYMILLIAN TECHNOLOGIES INC.

SCALE IN FEET
1 INCH = 60 FEET
HORIZONTAL DATUM IS NAD83 MASSACHUSETTS STATE PLANE
VERTICAL DATUM IS NGVD29

30 0 60 120 FEET
SCALE 1"= 60'

US Army Corps of Engineers
New England District

Symbol	Description	Date	Appr

Date: DEC 2004
Design file no. WS2204-C-103F4.DGN
Drawing code:
File name:
Plot date:
Plot scale:

Designed by: J. SCOTT, M. OTTEN
Drawn by: F. MENCHELLI, C. POTVIN
Reviewed by: P. BARRY, J. FUSCONI
Submitted by:

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
CONCORD, MASSACHUSETTS

FOSTER WHEELER ENVIRONMENTAL CORP.
ONE CENTENNIAL STREET
BOSTON, MASSACHUSETTS

NEW BEDFORD HARBOR SUPERFUND SITE
NEW BEDFORD, MASSACHUSETTS
NORTH OF WOOD STREET

SITE PLAN
DELINEATION OF PLANTING ZONES

FIGURE 4

Appendix D

List of Equipment Used On-site for the Remediation Work with Decontamination Certificates

NORTH OF WOOD STREET PROJECT
EQUIPMENT INSPECTION LOG

Equipment	Serial #	Mobilized	Demobilized	Decon Cert
CAT Dozer D-4		10/21/02	04/18/03	NA-Clean
Decon Trailer 8 X 26		10/21/02	04/03/03	04/03/03
Rental mechanics truck (Budget)		10/21/02	04/17/03	04/15/03
ASV Positrac all terrain vehicle	MT # 35	10/23/02	11/21/02	11/20/02
Two Chain Saws Stihl	Model #s 036 and 038	10/28/02	08/11/03	NA-Clean
Vermeer Wood Chipper-	Model BC 1230A Serial # VRN15179W1002151	10/28/02	11/01/02	NA-Clean
Kobelco Excavator K 912LC II	S/N Y0-00441	10/29/02	07/08/03	03/03/03
CAT Crawler Excavator 320 BL - United	S/N 6CRO4936	10/30/02	01/14/03	No Cert.
MQ Power Corp Portable Generator 14.4 KW Unit 8169 # 179	S/N Model # DCA25SSIV	10/30/02	05/22/03	NA-Clean
Saucier Welding and Fabricating Vehicle Mounted Miller 8000 Watt Welder		10/30/02	10/30/02	NA-Clean
CAT Rubber tire Backhoe/Loader 416C With Forks	MT #58	11/04/02	05/07/03	NA-Clean
Takevichi Mini Excavator 14000 Rental	TB 175 RR 9070114	11/05/02	11/12/02	NA-Clean
Grove Crane TM 750 B 50 Ton Hesco Co. Rental	S/N 86940	11/06/02	11/08/02	NA-Clean
JCB Rubber tire Backhoe/Loader JS 130 # 58 – United Rentals	S/N 759007	11/12/02	11/14/02	NA-Clean
Rain for Rent Blue Roll-Off	#NVRU 200544	11/12/02	04/07/03	03/03/03
Rain for Rent Blue Roll-Off W/cover	#NVRU 200432	11/12/02	04/08/03	03/03/03
Miller AC/DC Bobcat Welder 225G 8000 Watt	S/N 903125	11/14/02	04/30/03	NA-Clean
Franklin Environmental Corp. Mack Truck		11/18/02	2-28-03-only truck	NA-Clean
MT Mack truck # 359 with Roll-off body		11/18/02	3-18-03-only truck	NA-Clean
Atlas Copco 175 CFM Air Compressor XAS85DD	S/N ARP930980	11/21/02	04/09/03	NA-Clean
CAT D 6 H LGP Bulldozer	S/N 3YG00481	11/21/02	01/06/03	01/06/03
US Filter Power Tag Along Generator # 60	S/N 3662012	11/21/02	12/13/02	NA-Clean
Daewoo Hydraulic Backhoe Solar 220 LC III # 57	S/N 1920	12/02/02	05/08/03	03/03/03
Vibromax #265 Roller	MT # 41	12/02/02	04/02/03	NA-Clean

NORTH OF WOOD STREET PROJECT
EQUIPMENT INSPECTION LOG

Equipment	Serial #	Mobilized	Demobilized	Decon Cert
Vibromax Roller 265	Maxy # 41	12/02/02	04/18/03	NA-Clean
Rain for Rent Blue Roll-Off	# 200346	12/09/02	04/07/03	03/05/03
CAT 330L Exavator	MT # 49	12/24/02	05/22/03	05/22/03
Mack Model R 800 ten wheel Dump Truck	Maxy # 68	12/27/02	05/07/03	05/07/03
Mack Model R 800 ten wheel Dump Truck	Maxy # 70	12/27/02	05/07/03	03/06/03
Volvo Dump Truck	Model # A35C	12/27/02	04/01/03	02/27/03
Volvo Dump Truck Model # A35C	# 381 VIN A35V2131	12/31/02	03/31/03	NA-Clean
Extech # 1 - screener & conveyor system	MT # 1	01/03/03	05/30/03	05/28/03
Motor Cat Generator 3406 Unit VO 3533E –Rental	Model # XQ 350	01/03/03	01/14/03	NA-Clean
CAT Dozer D6	MT # 38	01/07/03	05/30/03	05/29/03
CAT 235C	Maxy # 46	01/09/03	03/31/03	03/03/03
CAT 245 LB80	Maxy # 16	01/09/03	03/24/03	03/19/03
Extech # 1 - slurry tank		01/10/03	NA - On Site	NA - On Site
Grove 45 Ton Hydraulic Crane	Model # RT 745, Serial # 69486	01/13/03	03/20/03	NA-Clean
CAT 235 Excavator w/Pump	SN# 5AF01363	01/14/03	04/10/03	04/09/03
CAT 320 BL	Maxy # 63	01/14/03	04/04/03	02/27/03
MT CAT Excavator (235C) W/Slurry Pump	MT # 69	01/14/03	05/29/03	05/28/03
Rain for Rent Blue Roll-Off	# 200356	01/15/03	04/08/03	03/06/03
Pipe Fusion Machine McElroy Manufacturing	Model # 12450001 SN 9740460-1	01/17/03	03/17/03	NA-Clean
CAT 307 Excavator	Maxy # 67	01/22/03	04/18/03	04/17/03
ASV Maxy #35	HD4520	01/28/03	03/08/03	03/08/03
Dump Truck	Maxy # 166	02/03/03	02/26/03	02/25/03
Gorman Rupp Slurry Pump	# W3	02/04/03	06/09/03	05/05/03
CAT Diesel Tagalong Generator	MT # 13	05/08/03	05/22/03	05/21/03
CAT Diesel Tagalong Generator	MT # 11	05/08/03	05/22/03	05/21/03
10 Wheel Dump Truck	MT # 41	05/27/03	05/08/03	03/05/03
Maxy Site Van	MT # 305	10/21/03	04/17/03	04/15/03
CAT 966 Loader	SN# 9YJO1320	10/30/03	04/17/03	04/30/03
Allu grinder bucket for use with Cat Excavators (inspected with Cat 330L # 49)		12/24/03	02/10/03	02/10/03
CAT D3C LPG	Maxy # 30	01//07/03	03/31/03	03/03/03
CAT 330 Exavator	Maxy # 51	11/18/03	11/19/03	NA-Clean
Vermeer Wood Chipper-	BC 1230	11/18/03	11/21/03	NA-Clean
CAT 320 Excavator	MT #63 (Mobilized from Area D)	12/02/03	12/15/03	12/15/03
MT Mack truck # 359 with Roll-off body		12/03/03	12/09/03	12/09/03

DECONTAMINATION CERTIFICATE

SUBJECT: Decon of Equipment

EQUIPMENT IDENTIFICATION: CAT Dozer D6 #38

TO: USACE

The above referenced piece of equipment was decontaminated on (Date: 5-29-03) in accordance with 40 CFR Part 761 (PCB Mega Rule) and 29 CFR 1910.120

Approved by		Approved by:	
Print Name	Dick Syniac	Print Name	Tom Hawthorne
Signature		Signature	
Title:	HSO	Title:	SHO
Company	MaxyTech	Company:	TTFW

Comments :

DECONTAMINATION CERTIFICATE

Left Site 5 29 03

SUBJECT: Equipment To Leave Site

EQUIPMENT IDENTIFICATION: MT CAT EXCAVATOR # 69 (235C) w/ Slurry Pump

TO: USACE

The above referenced piece of equipment was decontaminated on (Date: 5-28-03) in accordance with 40 CFR Part 761 (PCB Mega Rule) and 29 CFR 1910.120

Approved by		Approved by:	
Print Name	Dick Syniac	Print Name	Tom Hawthorne
Signature	[signature]	Signature	[signature]
Title:	HSE	Title:	SHO
Company	Maxymillian Tech	Company:	TTEC

Comments :

Note : Slurry Pump was decon'd at an earlier Date [signature]

Left Site
5/30/03

~~Left Site~~

N/A D.S

DECONTAMINATION CERTIFICATE

SUBJECT: Equipment To Leave Site

EQUIPMENT IDENTIFICATION: Extec Conveyor Sys #1

TO: USACE

The above referenced piece of equipment was decontaminated on (Date: 5-28-03)
in accordance with 40 CFR Part 761 (PCB Mega Rule) and 29 CFR 1910.120

Approved by		Approved by:	
Print Name	Dick Sykes	Print Name	Tom Hewitt
Signature		Signature	
Title:	HSO	Title:	NAG
Company	Maximillian Tech	Company:	TTFW

Comments :

Left Site
5-22-03

DECONTAMINATION CERTIFICATE

SUBJECT: Decon of Equipment To Leave Site

EQUIPMENT IDENTIFICATION: CAT 235 Excavator (330) #49

TO: USACE

The above referenced piece of equipment was decontaminated on (Date: 5-22-03) in accordance with 40 CFR Part 761 (PCB Mega Rule) and 29 CFR 1910.120

Approved by		Approved by:	
Print Name	Dick Syniac	Print Name	Tom Kaczmarek
Signature		Signature	
Title:	HSO	Title:	HSO
Company	Maxymillian Tech	Company:	TTEC

Comments :

1

Left Site
5-22-03

DECONTAMINATION CERTIFICATE

SUBJECT: Equipment To Leave Site

EQUIPMENT IDENTIFICATION: CAT Diesel Tagalong Generators #13
" " " " #11

TO: USACE

The above referenced piece of equipment was decontaminated on (Date: 5-21-03)
in accordance with 40 CFR Part 761 (PCB Mega Rule) and 29 CFR 1910.120

Approved by		Approved by:	
Print Name	Dick Syniac	Print Name	Tom Howytherne
Signature		Signature	
Title:	HSO	Title:	IHO
Company	Maxymillian Tech	Company:	TTFW

Comments :

Both Generators were used at the DDA and positioned in Clean Areas, Both Pieces were washed and Cleaned Before being DeMobed

DECONTAMINATION CERTIFICATE

SUBJECT: Decon of Equipment To Leave Site

EQUIPMENT IDENTIFICATION: Maxy Tech Dump Truck #68

TO: USACE

The above referenced piece of equipment was decontaminated on (Date: 5-7-03)
in accordance with 40 CFR Part 761 (PCB Mega Rule) and 29 CFR 1910.120

Approved by		Approved by:	
Print Name	Dick Syrnac	Print Name	Tom Hawthorne
Signature		Signature	
Title:	HSO	Title:	SHSO
Company	Maxy Tech	Company:	TTEC

Comments :

DECONTAMINATION CERTIFICATE

SUBJECT: Equipment To Leave Site

EQUIPMENT IDENTIFICATION: CAT 416C MT #58

TO: USACE

The above referenced piece of equipment was decontaminated on (Date: 5-7-03) in accordance with 40 CFR Part 761 (PCB Mega Rule) and 29 CFR 1910.120

Approved by		Approved by:	
Print Name	Dick Sy[illegible]	Print Name	Thomas Hawthorne
Signature	[signature]	Signature	[signature]
Title:	HSC	Title:	SHO
Company	Maxy Tech	Company:	TFW

Comments : - Only used for clean operations

DECONTAMINATION CERTIFICATE

SUBJECT: Decon of Equipment

EQUIPMENT IDENTIFICATION: Slurry Pump - with Slurry tank on Extech

TO: USACE

The above referenced piece of equipment was decontaminated on (Date: 5-5-03) in accordance with 40 CFR Part 761 (PCB Mega Rule) and 29 CFR 1910.120

Approved by		Approved by:	
Print Name	Dick Syniac	Print Name	
Signature	Dated	Signature	
Title:	HSO	Title:	
Company	MAX-Tech	Company:	

Comments :

This pump was part of Decon of EXCAVATOR which left site previously. (4-10-03) It was inspected at this time.

DS

which pump?

Crane Rig?

<u>DECONTAMINATION CERTIFICATE</u>

SUBJECT: Decon of Equipment To leave Site

EQUIPMENT IDENTIFICATION: CAT 966 LOADER

TO: USACE

The above referenced piece of equipment was decontaminated on (Date: 4-30-03)
in accordance with 40 CFR Part 761 (PCB Mega Rule) and 29 CFR 1910.120

Approved by		Approved by:	
Print Name	Dick Syriac	Print Name	Thomas Hawthorne
Signature	[signature]	Signature	[signature]
Title:	SHSO	Title:	SHSO
Company	Maxymillian Tech	Company:	TTFW

Comments :

- only tires - were "contaminated"

[initials]

DECONTAMINATION CERTIFICATE

SUBJECT: Equipment Leaving Site

EQUIPMENT IDENTIFICATION: Vibromax # 265 Roller MT # 41 Demobed 4-18-03
CAT Dozer D-4 Demobed 4-18-03
Clean work only

TO: USACE

The above referenced piece of equipment was decontaminated on (Date: N/A)
in accordance with 40 CFR Part 761 (PCB Mega Rule) and 29 CFR 1910.120

Approved by		Approved by:	
Print Name	Dirk Syniac	Print Name	
Signature		Signature	
Title:	HSO	Title:	
Company	Maxy Tech	Company:	

Comments :
Machine was only used in Clean areas on site
Demobed From Site

Left Site
4-18-03

DECONTAMINATION CERTIFICATE

SUBJECT: Decon of Equipment

EQUIPMENT IDENTIFICATION: CAT 307 #67 Excavator

TO: USACE

The above referenced piece of equipment was decontaminated on (Date: 4-17-03)
in accordance with 40 CFR Part 761 (PCB Mega Rule) and 29 CFR 1910.120

Approved by		Approved by:	
Print Name	Dick Syrjac	Print Name	Thomas Hawthorne
Signature		Signature	
Title:	HSO	Title:	SHSO
Company	Maxy Tech	Company:	TTEC

Comments :

DECONTAMINATION CERTIFICATE

SUBJECT: Equipment / Vehicles Leaving Site

EQUIPMENT IDENTIFICATION: Rental Mechanics Truck (Budget)
MAXY Tech Site Van #305

TO: USACE

The above referenced piece of equipment was decontaminated on (Date: 4-15-03)
in accordance with 40 CFR Part 761 (PCB Mega Rule) and 29 CFR 1910.120

Approved by		Approved by:	
Print Name	Dick Syniac	Print Name	
Signature		Signature	
Title:	HSO	Title:	
Company	MAXY Tech	Company:	

Comments :
Both Vehicles Cleaned inside and out. Vehicles were used for clean work only.

Dick Syniac

Left site 4-10-03

DECONTAMINATION CERTIFICATE

SUBJECT: Decon of Equipment For Purpose of Leaving Site

EQUIPMENT IDENTIFICATION: CAT 235 EXCAVATOR w/ Pump

TO: US ARMY Corp Engineers

The above referenced piece of equipment was decontaminated on (Date: 4-9-03) in accordance with 40 CFR Part 761 (PCB Mega Rule) and 29 CFR 1910.120

Approved by

Print Name Dutch Syriac
Signature [signature]
Title: HSO
Company Maxy Tech

Approved by:

Print Name Tom Hawthorne
Signature [signature]
Title: HSO
Company: ITFW

Comments :

DECONTAMINATION CERTIFICATE

SUBJECT: Decon of Equipment For Purpose of Leaving Site

EQUIPMENT IDENTIFICATION: Trac Along Air Compresson (Atlas) MAXY #171

TO: U.S. ARMY Corp Engineers

The above referenced piece of equipment was decontaminated on (Date: 4-9-03) in accordance with 40 CFR Part 761 (PCB Mega Rule) and 29 CFR 1910.120

Approved by		Approved by:	
Print Name	[illegible]	Print Name	[illegible]
Signature	[signature]	Signature	[signature]
Title:	HSO	Title:	HSO
Company	MAXY Tech	Company:	TTI-W

Comments : CLEAN OPERATIONS ONLY

Left Site
4/3/03

DECONTAMINATION CERTIFICATE

SUBJECT: De Bed of Site Trailer

EQUIPMENT IDENTIFICATION: Decon Trailer 8x24'

TO: U.S. ARMY Corps of Engineers

The above referenced piece of equipment was decontaminated on (Date: 4-3-03) in accordance with 40 CFR Part 761 (PCB Mega Rule) and 29 CFR 1910.120

Approved by		Approved by:	
Print Name	Didi Syniac	Print Name	Mike Stow
Signature		Signature	
Title:	HSO	Title:	HSO
Company	Maxymillian Tech	Company:	TTEW

Comments :
Decon Trailer Sent Back To Pittsfield

Left site 3-24-03

DECONTAMINATION CERTIFICATE

SUBJECT: Decon of Equipment To Be Removed From Site North of Lee St Remediation Project

EQUIPMENT IDENTIFICATION: CAT 245 CB80

TO: U.S. ARMY Corps of Engineers

The above referenced piece of equipment was decontaminated on (Date: 3-19-03) in accordance with 40 CFR Part 761 (PCB Mega Rule) and 29 CFR 1910.120

Approved by		Approved by:	
Print Name	Dick Syriac	Print Name	[illegible]
Signature	[signature]	Signature	[signature]
Title:	HSO	Title:	[illegible]
Company	Maxymillian Tech	Company:	TETRA TECH FW

Comments :

INSIDE GEAR BOX TO BE DECONTAMINATED ON YARD BEFORE IT'S DEMOBILIZED. (MJS)

DECONTAMINATION CERTIFICATE

SUBJECT: Decon Equipment & Remove From Exclusion Zone

EQUIPMENT IDENTIFICATION: 45' Maxy # 35 HD452

TO: U S ARMY Corps Engineers

The above referenced piece of equipment was decontaminated on (Date: 3-8-03)
in accordance with 40 CFR Part 761 (PCB Mega Rule) and 29 CFR 1910.120

Approved by		Approved by:	
Print Name	Dirk Syriac	Print Name	John Fuseeni
Signature	[signature]	Signature	[signature]
Title:	HSO	Title:	Construction Eng
Company	Maxymillian Tech	Company:	FWENC

Comments : Removed From Site 3-8-03

DECONTAMINATION CERTIFICATE

SUBJECT: Decon For Purpose of Removal From Site

EQUIPMENT IDENTIFICATION: 10 wheel Dump Truck MT # 70

TO: U.S. ARMY Corps of Engineers

The above referenced piece of equipment was decontaminated on (Date: 3-6-03) in accordance with 40 CFR Part 761 (PCB Mega Rule) and 29 CFR 1910.120

Approved by		Approved by:	
Print Name	Dick Syrnac	Print Name	Tim Hawthorne
Signature		Signature	
Title:	HSO	Title:	SHSO
Company	Moxy Technologies	Company:	TTFWENC

Comments :

Done on 3/11/03

DECONTAMINATION CERTIFICATE

SUBJECT: Decon For Purpose of Removal From Site

EQUIPMENT IDENTIFICATION: Rain For Rent Blue Baffle Container #200356

TO: US ARMY CORPS of ENGINEERS

The above referenced piece of equipment was decontaminated on (Date: 3-6-03) in accordance with 40 CFR Part 761 (PCB Mega Rule) and 29 CFR 1910.120

Approved by		Approved by:	
Print Name	Dick Syriac	Print Name	Tom Hawthorne
Signature	[signature]	Signature	[signature]
Title:	HSO	Title:	SHSO
Company	Maxymillian Technologies	Company:	FWENC

Comments :

DPA

DECONTAMINATION CERTIFICATE

SUBJECT: Equipment Decon

EQUIPMENT IDENTIFICATION: 10 wheel Dump MT #11

TO: U.S ARMY Corps Engineers

The above referenced piece of equipment was decontaminated on (Date: 3-5-03) in accordance with 40 CFR Part 761 (PCB Mega Rule) and 29 CFR 1910.120

Approved by		Approved by:	
Print Name	Dick Syrnic	Print Name	Thomas McMinn
Signature		Signature	
Title:	#580	Title:	INTS II
Company	Maxymillian Tech.	Company:	FWENC

Comments :

Dirt on 3/11/03

left site 5-8-03

FLY

IDA
Left Site
4/7/03

DECONTAMINATION CERTIFICATE

SUBJECT: Decon For Purpose of Removal From Site

EQUIPMENT IDENTIFICATION: RFR # 200346
Blue Roll off Container

TO: U.S Army Corps Engineers

The above referenced piece of equipment was decontaminated on (Date: 3-5-03) in accordance with 40 CFR Part 761 (PCB Mega Rule) and 29 CFR 1910.120

Approved by		Approved by:	
Print Name	Dale Cyriac	Print Name	Tom Hawthorne
Signature	[signature]	Signature	[signature]
Title:	HSO	Title:	SHSO
Company	Maxymillian Tech	Company:	FWENC

Comments :

DECONTAMINATION CERTIFICATE

SUBJECT: Equipment Removed from Exclusion Zones

EQUIPMENT IDENTIFICATION: Kobelco K912 LC II Maxy #66

TO: US Army Corps Engineers

The above referenced piece of equipment was decontaminated on (Date: 3-3-03) in accordance with 40 CFR Part 761 (PCB Mega Rule) and 29 CFR 1910.120

Approved by		Approved by:	
Print Name	Dick Syrjac	Print Name	Mike Stout
Signature		Signature	
Title:	HSO	Title:	HSO
Company	Maxymillian Tech	Company:	FWENC

Comments :

DECONTAMINATION CERTIFICATE

SUBJECT: Equipment DeCon / Removal From Exclusion Zone

EQUIPMENT IDENTIFICATION: CAT 235C Maxy # 46

TO: U.S. Army Corps Engineers

The above referenced piece of equipment was decontaminated on (Date: 3-3-03) in accordance with 40 CFR Part 761 (PCB Mega Rule) and 29 CFR 1910.120

Approved by		Approved by:	
Print Name	Dick Symic	Print Name	Mike Sivy
Signature		Signature	
Title:	HSO	Title:	HSO
Company	Maxymillian Tech	Company:	FWENC

Comments : Smooth 3-31-03

Left Site
5-9-03

DECONTAMINATION CERTIFICATE

SUBJECT: Equipment DeCon of Pieces To Be Removed From Exclusion Zone

EQUIPMENT IDENTIFICATION: [illegible] 220 LC III Excavator [illegible] 57

TO: U S ARMY Corps Engineers

The above referenced piece of equipment was decontaminated on (Date: 3-3-03)
in accordance with 40 CFR Part 761 (PCB Mega Rule) and 29 CFR 1910.120

Approved by

Print Name: Dick Syriac
Signature: [signature]
Title: HSC
Company: Maximillian Tech

Approved by:

Print Name: Mike Stout
Signature: [signature]
Title: HSO
Company: Fluor

Comments :

TK ✓

D01

DECONTAMINATION CERTIFICATE

SUBJECT: Removal of Roll Off Container From Nr. Wood ST Remediation Project

EQUIPMENT IDENTIFICATION: [illegible] For Rent Blue Rolloff # NYRU 200432 [illegible]

TO: US ARMY Corps of Engeneers

The above referenced piece of equipment was decontaminated on (Date: 3-3-03) in accordance with 40 CFR Part 761 (PCB Mega Rule) and 29 CFR 1910.120

Approved by		Approved by:	
Print Name	Dick SYRIAC	Print Name	[illegible]
Signature	[signature]	Signature	[illegible]
Title:	HSO	Title:	[illegible]
Company	MAXYmillian Tech	Company:	[illegible]

Comments :

DECONTAMINATION CERTIFICATE

SUBJECT: Equipment Decon, To Be Removed From Exclusion Zones

EQUIPMENT IDENTIFICATION: CAT D3C LGP MAXV # 3C

TO: US ARMY Corps Engineers

The above referenced piece of equipment was decontaminated on (Date: 3-3-03) in accordance with 40 CFR Part 761 (PCB Mega Rule) and 29 CFR 1910.120

Approved by		Approved by:	
Print Name	Dick Svarac	Print Name	MIKE STOTT
Signature		Signature	
Title:	HSO	Title:	HSO
Company	Maxymillian Tech	Company:	EWNC

Comments : Demobed 3-31-03

DOA

Left site 4/7/03

DECONTAMINATION CERTIFICATE

SUBJECT: Equipment To Be Removed from Site

EQUIPMENT IDENTIFICATION: RFR Roll Off Container # NVRU 200 544 (Blue)

TO: U.S ARMY Corps of Engineers

The above referenced piece of equipment was decontaminated on (Date: 3-3-03) in accordance with 40 CFR Part 761 (PCB Mega Rule) and 29 CFR 1910.120

Approved by		Approved by:	
Print Name	T.K. SVRIAC	Print Name	MIKE STOTT
Signature		Signature	
Title:	HSO	Title:	HSO
Company	Environmental Tech	Company:	EWENG

Comments :

LEFT SITE 4/1/03

DECONTAMINATION CERTIFICATE

SUBJECT: DECON of EXCAVATOR used in EXCLUSION ZONE
No. WOOD ST Remediation

EQUIPMENT IDENTIFICATION: CAT 320BL MAXY # 63
Long Boom

TO: U.S ARMY Corps Engineers

The above referenced piece of equipment was decontaminated on (Date: 2-27-03)
in accordance with 40 CFR Part 761 (PCB Mega Rule) and 29 CFR 1910.120

Approved by		Approved by:	
Print Name	Dick Syracuse	Print Name	MIKE STOUT
Signature		Signature	
Title:	HSO	Title:	HSO
Company	Maxymillian Tech	Company:	FWHE

Comments :

Left Site
4-1-03

DECONTAMINATION CERTIFICATE

SUBJECT: STAGING FOR REMOVAL FROM EXCLUSION ZONE TO BE REMOVED FROM SITE NO. WOOD ST REMEDIATION

EQUIPMENT IDENTIFICATION: Volvo A35C MAXY # 383 EARTH MOVER

TO: U.S ARMY Corps Engineers

The above referenced piece of equipment was decontaminated on (Date: 2-27-03) in accordance with 40 CFR Part 761 (PCB Mega Rule) and 29 CFR 1910.120

Approved by		Approved by:	
Print Name	Dick Syriac	Print Name	[illegible]
Signature		Signature	
Title:	HSO	Title:	HSO
Company	Maxymillian Tech	Company:	FWENC

Comments :

D/ Left Site 2-26-03

DECONTAMINATION CERTIFICATE

SUBJECT: Removal of Dump Truck From No. Wood St Remediation Project.

EQUIPMENT IDENTIFICATION: Dump Truck J.H. Maxymillian # 166

TO: U.S. Army Corps of Engineers

The above referenced piece of equipment was decontaminated on (Date: 2-25-03) in accordance with 40 CFR Part 761 (PCB Mega Rule) and 29 CFR 1910.120

Approved by		Approved by:	
Print Name	Dick Sylvac	Print Name	Michael Stout
Signature		Signature	
Title:	HSO	Title:	PSO
Company	Maxymillian Tech	Company:	Foster Wheeler

Comments :

DECONTAMINATION CERTIFICATE

SUBJECT: [illegible]

EQUIPMENT IDENTIFICATION: BLUE [illegible]

TO: [illegible]

The above referenced piece of equipment was decontaminated on (Date: [illegible]) in accordance with 40 CFR Part 761 (PCB Mega Rule) and 29 CFR 1910.120

Approved by		Approved by:	
Print Name	[illegible]	Print Name	[illegible]
Signature	[illegible]	Signature	[illegible]
Title:		Title:	[illegible]
Company	[illegible]	Company:	[illegible]

Comments :

DECONTAMINATION CERTIFICATE

SUBJECT: [illegible]

EQUIPMENT IDENTIFICATION: [illegible]

TO: [illegible]

The above referenced piece of equipment was decontaminated on (Date: 11/6/03)
in accordance with 40 CFR Part 761 (PCB Mega Rule) and 29 CFR 1910.120

Approved by

Print Name [illegible]
Signature [illegible]
Title:
Company [illegible]

Approved by:

Print Name [illegible]
Signature [illegible]
Title: [illegible]
Company: [illegible]

Comments:

DECONTAMINATION CERTIFICATE

SUBJECT: [illegible]

EQUIPMENT IDENTIFICATION: [illegible]

TO: [illegible]

The above referenced piece of equipment was decontaminated on (Date: [illegible])
in accordance with 40 CFR Part 761 (PCB Mega Rule) and 29 CFR 1910.120

Approved by

Print Name [illegible]
Signature [illegible]
Title:
Company [illegible]

Approved by:

Print Name [illegible]
Signature [illegible]
Title:
Company: [illegible]

Comments :

DECONTAMINATION CERTIFICATE

SUBJECT: North of Wood St Bridge

EQUIPMENT IDENTIFICATION: Small Cat 320 Digging Bucket

TO: USACE

The above referenced piece of equipment was decontaminated on (Date: 12/15/03) in accordance with 40 CFR Part 761 (PCB Mega Rule) and 29 CFR 1910.120

Approved by

Print Name Jim Mannering
Signature [signature]
Title: CQC/HSO
Company Maximilian TEC

Approved by:

Print Name Michael Stot
Signature [signature]
Title: CQC/HSO
Company: [illegible]

Comments : Off Site 12/15/03

DECONTAMINATION CERTIFICATE

SUBJECT: North of wood Street Excavating

EQUIPMENT IDENTIFICATION: Roll off container

TO: USMC

The above referenced piece of equipment was decontaminated on (Date: 12/9/08) in accordance with 40 CFR Part 761 (PCB Mega Rule) and 29 CFR 1910.120

Approved by		Approved by:	
Print Name	Tim Mannering	Print Name	MIKE STOUT
Signature	Tim Mannering	Signature	[signature]
Title:	TOC Kssv	Title:	CQC [illegible]
Company	Maxymillian Technologies	Company:	TTFW

Comments : OFF SITE 12/9/08

DECONTAMINATION CERTIFICATE

SUBJECT: North of Ward St

EQUIPMENT IDENTIFICATION: CAT 320 Bucket

TO: USACE

The above referenced piece of equipment was decontaminated on (Date: 12/8/03) in accordance with 40 CFR Part 761 (PCB Mega Rule) and 29 CFR 1910.120

Approved by		Approved by:	
Print Name	Jennifer Lenz	Print Name	Michael Stay
Signature		Signature	
Title:	SSHO	Title:	CQC
Company	Apex / MT	Company:	TTFW

Comments :

Appendix E

Design Excavation Drawings

Appendix E.1 TtFW Excavation Design Drawings, Issued September 2002

Appendix E.2 Compliance Demonstration Areas for Confirmatory Sampling North of Wood Street

Appendix E.3 Z-star Depths

Appendix E.1

TtFW Excavation Design Drawings, Issued September 2002

US Army Corps
of Engineers
New England District

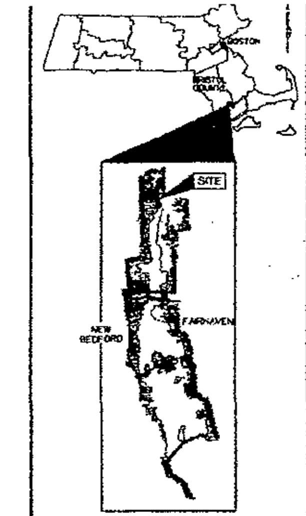
FOSTER WHEELER
FOSTER WHEELER ENVIRONMENTAL CORPORATION
133 FEDERAL STREET
BOSTON, MASSACHUSETTS 02110
Engineering · Remediation · Planning · Consulting
TEL: (617) 457-8200 FAX: (617) 457-8498/8499

SEDIMENT EXCAVATION DESIGN NORTH OF WOOD STREET

NEW BEDFORD HARBOR SUPERFUND SITE

ISSUED FOR CONSTRUCTION SEPTEMBER 2002

NEW BEDFORD, MASSACHUSETTS



SITE VICINITY
NOT TO SCALE

PROJ. NO. 5197.WS22.6419		INDEX TO DRAWINGS
SHEET NO.	DRAWING NO.	TITLE
1 G-001	WS2204-G-0010xx.DGN	COVER SHEET AND INDEX TO DRAWINGS
2 G-002	WS2204-G-0020xx.DGN	STANDARD SYMBOLS AND ABBREVIATIONS AND PROJECT LOCATION PLAN
3 C-101	WS2204-C-1010xx.DGN	EXISTING CONDITIONS PLAN
4 C-102	WS2204-C-1020xx.DGN	SITE PLAN
5 C-103	WS2204-C-1030xx.DGN	BERM PLAN – NORTH AND SOUTH OF WOOD STREET BRIDGE
6 C-301	WS2204-C-3010xx.DGN	BERM CROSS SECTIONS – NORTH AND SOUTH OF WOOD STREET BRIDGE
7 C-104	WS2204-C-1040xx.DGN	WOOD STREET EXCAVATION – N 2,708,000 TO N 2,708,400
8 C-105	WS2204-C-1050xx.DGN	WOOD STREET EXCAVATION – N 2,708,300 TO N 2,708,700
9 C-106	WS2204-C-1060xx.DGN	WOOD STREET EXCAVATION – N 2,708,700 TO N 2,709,000
10 C-107	WS2204-C-1070xx.DGN	WOOD STREET EXCAVATION – N 2,709,000 TO N 2,709,300
11 C-108	WS2204-C-1080xx.DGN	WOOD STREET EXCAVATION – N 2,709,000 TO N 2,709,500
12 C-202	WS2204-C-3020xx.DGN	WOOD STREET EXCAVATION – CROSS SECTIONS – E 815,200 TO E 815,050
13 C-303	WS2204-C-3030xx.DGN	WOOD STREET EXCAVATION – CROSS SECTIONS – E 815,400 TO E 815,250
14 C-304	WS2204-D-3040xx.DGN	WOOD STREET EXCAVATION – CROSS SECTIONS – N 2,708,100 TO N 2,708,300
15 C-305	WS2204-C-3050xx.DGN	WOOD STREET EXCAVATION – CROSS SECTIONS – N 2,708,350 TO N 2,708,550
16 C-306	WS2204-C-3060xx.DGN	WOOD STREET EXCAVATION – CROSS SECTIONS – N 2,708,600 TO N 2,708,800
17 C-307	WS2204-C-3070xx.DGN	WOOD STREET EXCAVATION – CROSS SECTIONS – N 2,708,850 TO N 2,709,050
18 C-308	WS2204-C-3080xx.DGN	WOOD STREET EXCAVATION – CROSS SECTIONS – N 2,709,100 TO N 2,209,300
19 C-309	WS2204-C-3090xx.DGN	WOOD STREET EXCAVATION – CROSS SECTIONS – N 2,709,100 TO N 2,209,300
20 C-310	WS2204-C-3100xx.DGN	CDF-DDA SITE PLAN, CROSS SECTIONS AND PROFILE

PROFESSIONAL SEAL
COMMONWEALTH OF MASSACHUSETTS
MARK T. OTTEN
CIVIL
No. 43212
REGISTERED PROFESSIONAL ENGINEER

VALUE ENGINEERING PAYS DIVIDENDS

SAFETY PAYS

CONTRACT • DACW33-94-D-0002

Signatures not required per USACE.

APPROVED FUNCTIONAL ADEQUACY
ENGINEER MANAGER DATE:
REVIEWED BY:
CHIEF, DESIGN BRANCH DATE:
REVIEWED BY:
CH. GEOTECH & WATER MGT BR DATE:
RECOMMENDED BY:
CHIEF, ENGRG MGMT BRANCH DATE:
APPROVED BY:
CHIEF, ENGRG/PLANNING DIV DATE:

PREPARED BY:
Mark T. Otten 10/04/02
PRINCIPAL, A/E FIRM DATE:
This project was designed for the New England Division of the U.S. Army Corps of Engineers. The initials or signatures and registration designations of individuals appear on these project documents within the scope of their employment as required by ER 1110-1-8152.

NEW BEDFORD HARBOR SUPERFUND SITE
NEW BEDFORD, MASSACHUSETTS
SEDIMENT EXCAVATION DESIGN, NORTH OF WOOD STREET

COVER SHEET AND INDEX TO DRAWINGS

Reference number:
G-001
Sheet 1 of 20

CAD FILE: WS2204-G-0010xx.DGN

LEGEND

EXISTING	PROPOSED	DESCRIPTION
—10—	—5—	INDEX CONTOUR
		INTERMEDIATE CONTOUR
11.5 x		SPOT ELEVATION
		LIMIT OF SAI TOPOGRAPHIC SURVEY
		LIMIT OF PROPOSED EXCAVATION
		WETLANDS BOUNDARY LINE
—x— — —x—		CHAIN LINK FENCE
		EDGE OF PAVEMENT
		TREE
		TREELINE
		BUILDING
203		CONTROL POINT/BENCHMARK
		AIR MONITORING STATION
		EXISTING VEGETATED WETLANDS AREAS
		EXISTING RIP-RAP

SECTION IDENTIFICATION LETTER

A/X

SHEET WHERE SECTION IS DRAWN

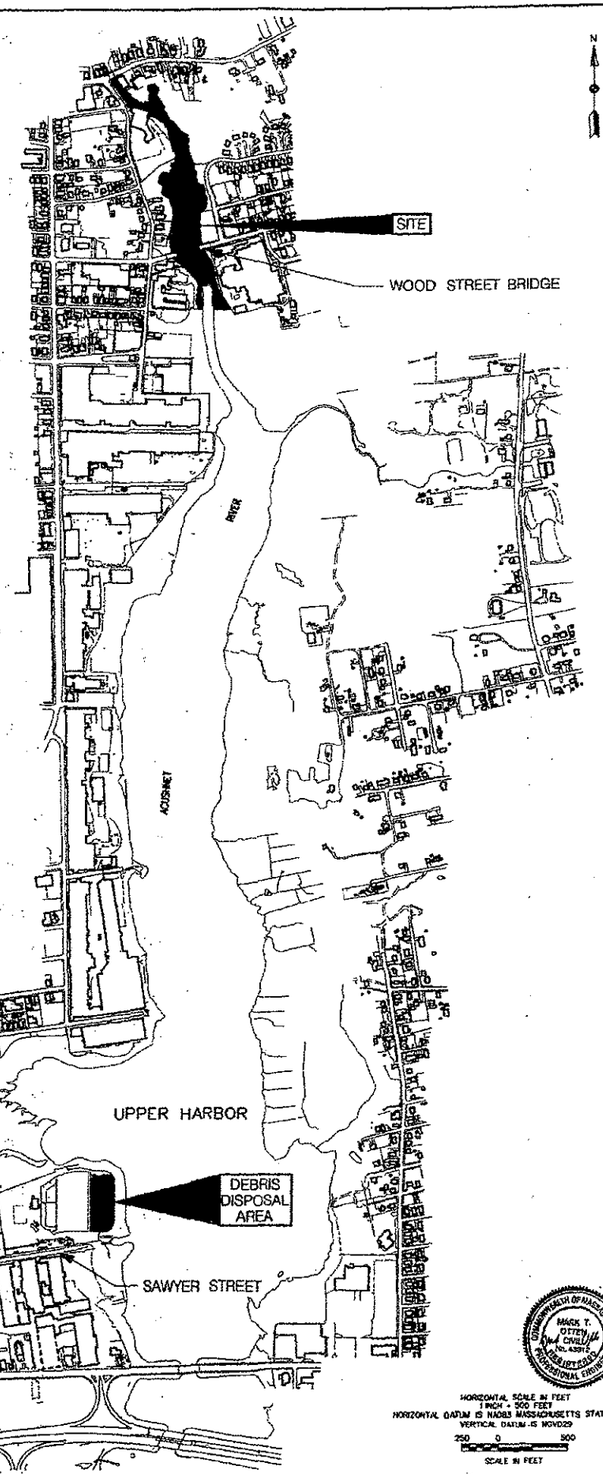
SECTION
NOT TO SCALE
A/X

ABBREVIATIONS

BC	BOTTOM OF CURB
℄ CL	CENTERLINE
CONC.	CONCRETE
DIA.	DIAMETER
E	EAST
EL., ELEV.	ELEVATION
EPA	ENVIRONMENTAL PROTECTION AGENCY
EXIST.	EXISTING
FT.	FEET
FWENC	FOSTER WHEELER ENVIRONMENTAL CORP.
IN.	INCH
INV.	INVERT
MHW	MEAN HIGH WATER
MIN.	MINIMUM
MLW	MEAN LOW WATER
N	NORTH
NAD83	NORTH AMERICAN HORIZONTAL DATUM OF 1983
NGVD29	NATIONAL GEODETIC VERTICAL DATUM OF 1929
NTS	NOT TO SCALE
℗ PL	PROPERTY LINE
TYP	TYPICAL
USACE	U.S. ARMY CORPS OF ENGINEERS
VERT.	VERTICAL

ISSUED FOR CONSTRUCTION

PROJECT LOCATION PLAN



MARK T. OTTEN
No. 43917
REGISTERED PROFESSIONAL ENGINEER
COMMONWEALTH OF MASSACHUSETTS

US Army Corps of Engineers
New England District

Symbol	Description	Date	Appr.
1	ISSUED FOR CONSTRUCTION	09/03/02	M.O.
0	ISSUED FOR 90% DESIGN SUBMITTAL	07/23/02	M.O.
A	ISSUED FOR USACE REVIEW	06/20/02	M.O.

Designed by: T. MONDELLI
Drawn by: T. MONDELLI
Approved by: M. OTTEN
Submitted by: FWENC

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
CONCORD, MASSACHUSETTS

FOSTER WHEELER ENVIRONMENTAL CORP.
133 FEDERAL STREET
BOSTON, MASSACHUSETTS

NEW BEDFORD HARBOR SUPERFUND SITE
NEW BEDFORD, MASSACHUSETTS
SEDIMENT EXCAVATION DESIGN, NORTH OF WOOD STREET

STANDARD SYMBOLS AND ABBREVIATIONS AND PROJECT LOCATION PLAN

Reference number:
G-002
Sheet 2 of 20

NOTES:

1. EXISTING CONDITIONS BASE MAP TOPOGRAPHY, OUTSIDE THE LIMITS OF SAI SURVEY, WAS COMPILED AND CONTROLLED BY PHOTOGRAMMETRIC METHODS BY JAMES W. SEWALL, OLD TOWN MAINE, ON DECEMBER 2, 1998.
2. UPDATED SURVEY OF EXCAVATION AREAS NORTH AND SOUTH OF WOOD ST. BRIDGE, ACUSHNET RIVER AND COASTAL AREAS AS SHOWN, WAS CONDUCTED BY. SAI SURVEYING CORPORATION, JAMESTOWN, RI, FROM APRIL 16-19, 2002.

ISSUED FOR CONSTRUCTION

COMMONWEALTH OF MASSACHUSETTS
MARK T. OTTEN
CIVIL
No. 43312
REGISTERED PROFESSIONAL ENGINEER

SCALE IN FEET
1 INCH = 60 FEET
HORIZONTAL DATUM IS NAD83 MASSACHUSETTS STATE PLANE
VERTICAL DATUM IS NGVD29

30 0 60 120 FEET
SCALE 1" = 60'

US Army Corps of Engineers
New England District

Symbol	Description	Date	Appr.
2	REVISED EXISTING TOPO	10/04/02	M.O.
1	ISSUED FOR CONSTRUCTION	08/19/02	M.O.
0	ISSUED FOR 90% DESIGN SUBMITTAL	07/23/02	M.O.
A	ISSUED FOR USACE REVIEW	06/20/02	M.O.

Date: 08/19/02 Rev. 2
Design file no. WS2304-C-1012xx.DGN
Drawing code:
File name:
Plot date:
Plot scale:

Designed by: R. FRANCISCO
Drawn by: C. POTVIN
Reviewed by: M. OTTEN
Submitted by:

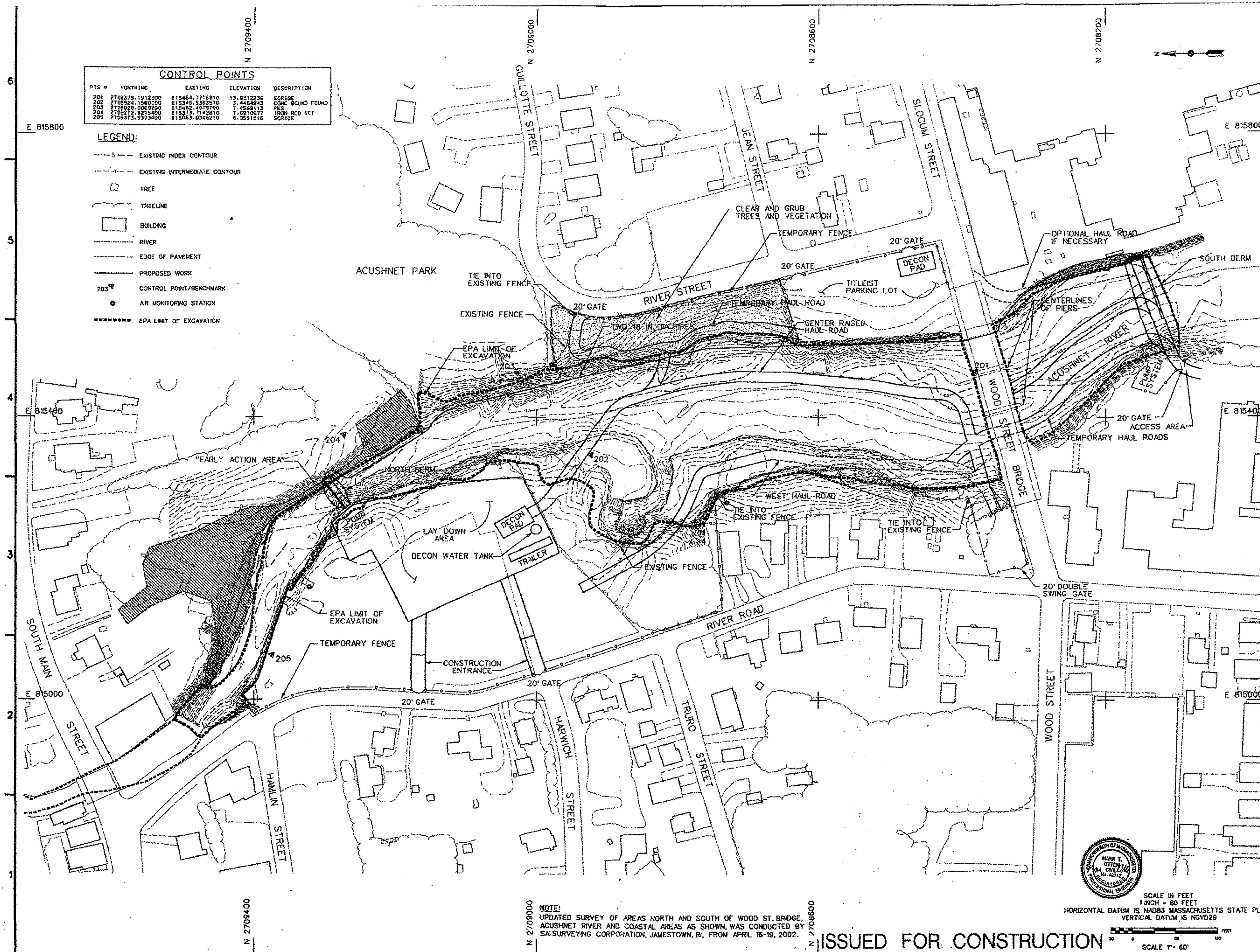
U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
CONCORD, MASSACHUSETTS

FOSTER WHEELER
ENVIRONMENTAL CORP.
133 FEDERAL STREET
BOSTON, MASSACHUSETTS

NEW BEDFORD HARBOR SUPERFUND SITE
NEW BEDFORD, MASSACHUSETTS
SEDIMENT EXCAVATION DESIGN, NORTH OF WOOD STREET

EXISTING CONDITIONS PLAN

Reference number:
C-101
Sheet 3 of 20



CONTROL POINTS

PTS #	NORTHING	EASTING	ELEVATION	DESCRIPTION
201	2708379.1912300	815464.7716810	13.9312236	SCRIBE
202	2708924.1580000	815348.5363570	3.4464943	CONC BOUND FOUND
203	2709028.0069200	815462.4679790	7.4568113	PKS
204	2709272.8215400	815373.7142810	7.6910677	IRON ROD SET
205	2709373.9373400	815063.0346210	6.0551516	SCRIBE

LEGEND:

- EXISTING INDEX CONTOUR
- EXISTING INTERMEDIATE CONTOUR
- TREE
- TREELINE
- BUILDING
- RIVER
- EDGE OF PAVEMENT
- PROPOSED WORK
- 203 CONTROL POINT/BENCHMARK
- AIR MONITORING STATION
- EPA LIMIT OF EXCAVATION

NOTE:
UPDATED SURVEY OF AREAS NORTH AND SOUTH OF WOOD ST. BRIDGE, ACUSHNET RIVER AND COASTAL AREAS AS SHOWN, WAS CONDUCTED BY SAI SURVEYING CORPORATION, JAMESTOWN, RI, FROM APRIL 16-19, 2002.

ISSUED FOR CONSTRUCTION

SCALE IN FEET
1 INCH = 60 FEET
HORIZONTAL DATUM IS NAD83 MASSACHUSETTS STATE PLANE
VERTICAL DATUM IS NGVD29

30 0 60 120 FEET
SCALE 1" = 60'

COMMONWEALTH OF MASSACHUSETTS
MARK T. OTTEN
CIVIL
No. 40312
REGISTERED PROFESSIONAL ENGINEER

US Army Corps of Engineers
New England District

Symbol	Description	Date	Appr.
1	ISSUED FOR CONSTRUCTION	09/18/02	M.O.
0	ISSUED FOR 90% DESIGN SUBMITTAL	07/23/02	M.O.
A	ISSUED FOR USACE REVIEW	06/20/02	M.O.

Date: 09/18/02
Rev.: 1
Design file no. W52204-C-102xx.DGN
Drawing code:
File name:
Plot date:
Plot scale:

Designed by: R. FRANCISCO
Drawn by: C. POTVIN
Reviewed by: M. OTTEN
Submitted by:

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
CONCORD, MASSACHUSETTS

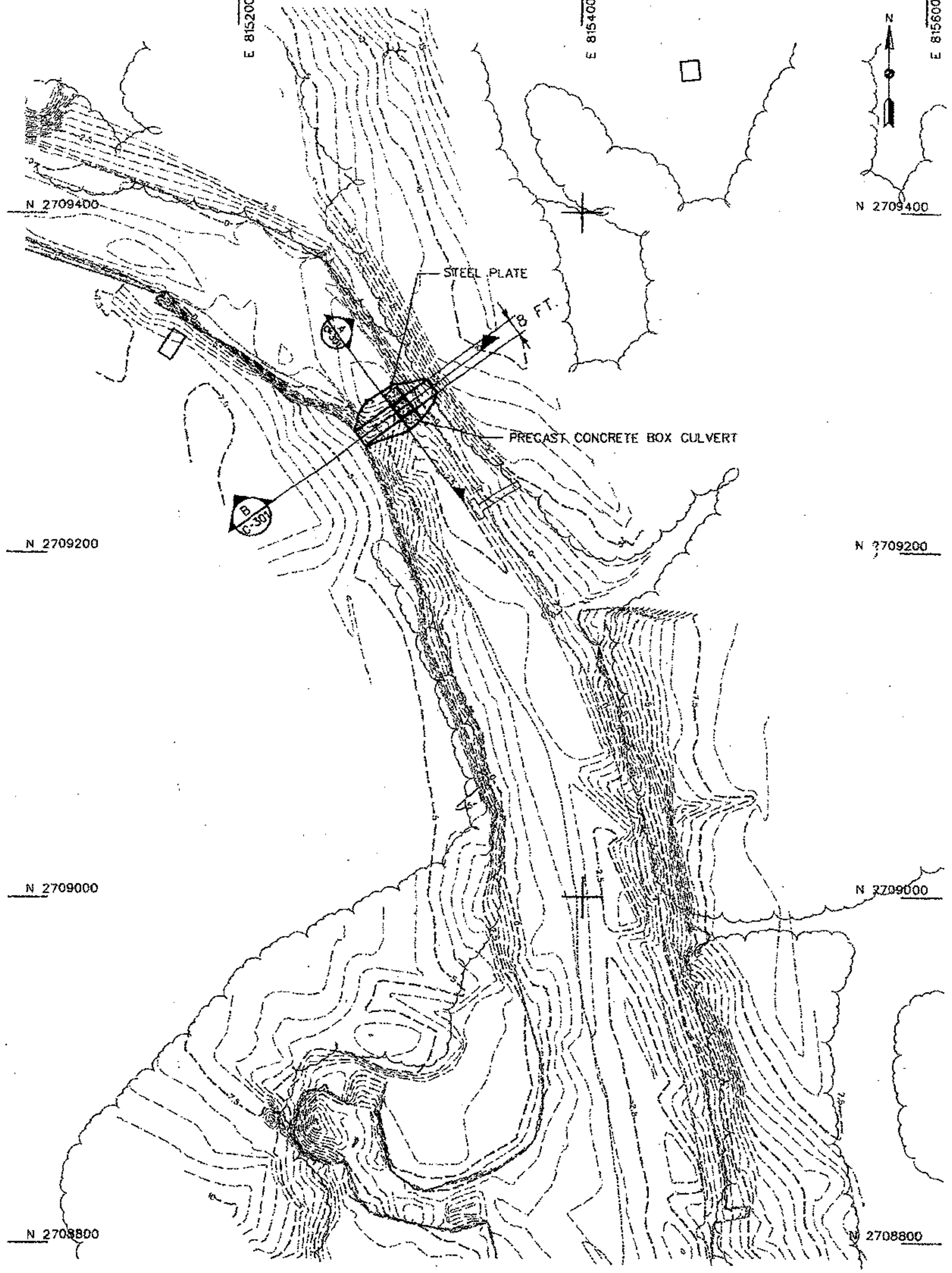
FOSTER WHEELER ENVIRONMENTAL CORP.
133 FEDERAL STREET
BOSTON, MASSACHUSETTS

NEW BEDFORD HARBOR SUPERFUND SITE
NEW BEDFORD, MASSACHUSETTS
SEDIMENT EXCAVATION DESIGN, NORTH OF WOOD STREET

SITE PLAN

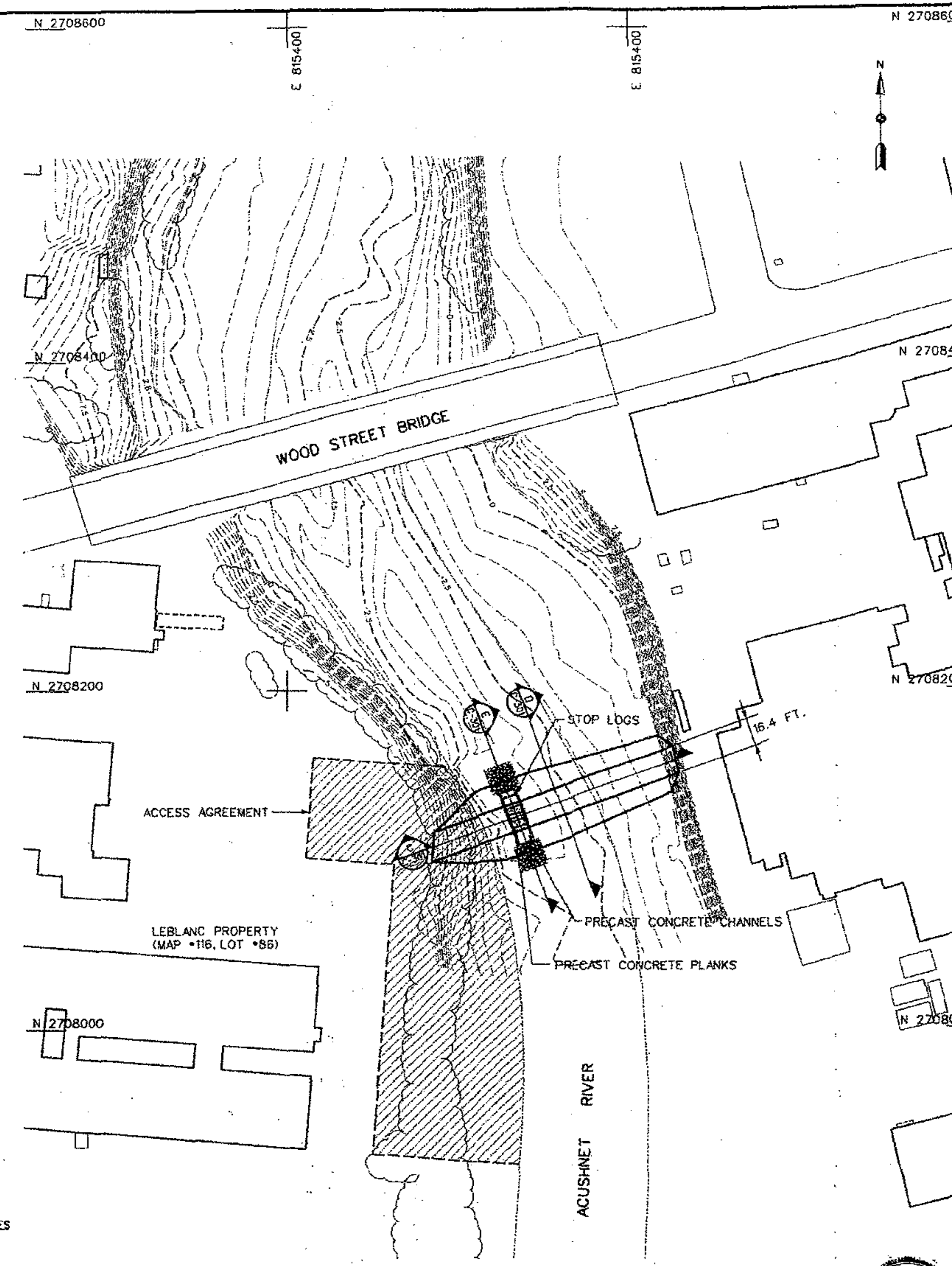
Reference number: C-102

Sheet 4 of 20



PLAN OF NORTH BERM

SCALE: 1"=40'



PLAN OF SOUTH BERM

SCALE: 1"=40'

PLAN NOTES

1. -

LEGEND:

- EXISTING INDEX CONTOUR
- EXISTING INTERMEDIATE CONTOUR
- TREE
- TREELINE
- BUILDING
- RIVER
- EDGE OF PAVEMENT
- PROPOSED WORK

SCALE IN FEET
1 INCH = 40 FEET
HORIZONTAL DATUM IS NAD83 MASSACHUSETTS STATE PLANE
VERTICAL DATUM IS NGVD29

20 0 40 80 FEET
SCALE 1"=40'

ISSUED FOR CONSTRUCTION

US Army Corps of Engineers
New England District

Symbol	Description	Date	Appr.
1	ISSUED FOR CONSTRUCTION	08/18/02	M.O.
0	ISSUED FOR 90% DESIGN SUBMITTAL	07/23/02	M.O.
A	ISSUED FOR USACE REVIEW	06/20/02	M.O.

Designed by: M. OTTEN
Drawn by: C. POTVIN
Reviewed by: M. OTTEN
Submitted by:
Date: 09/18/02
Rev. 1
Design file no. WS2204-C-103.dgn
Drawing code:
File name:
Plot date:
Plot scale:

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
CONCORD, MASSACHUSETTS

FOSTER WHEELER
ENVIRONMENTAL CORP.
133 FEDERAL STREET
BOSTON, MASSACHUSETTS

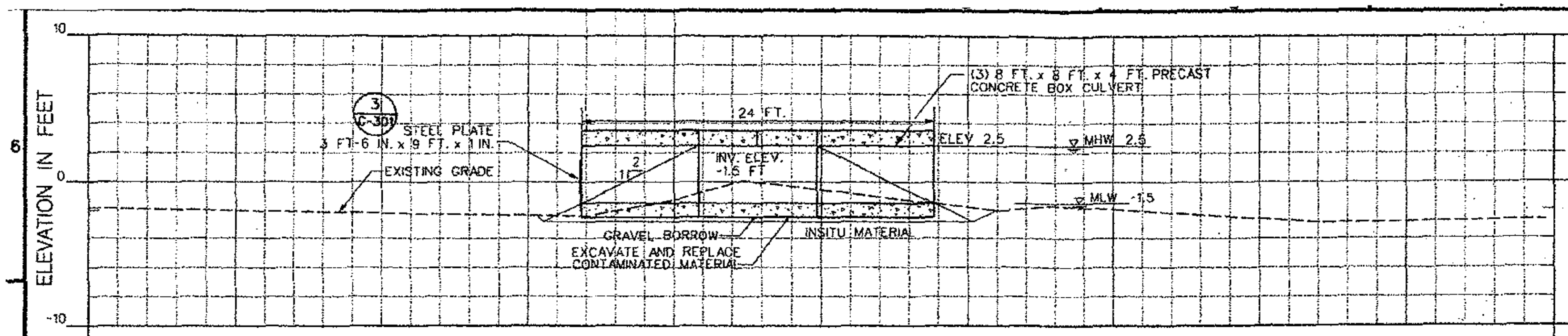
NEW BEDFORD HARBOR SUPERFUND SITE
NEW BEDFORD, MASSACHUSETTS
SEDIMENT EXCAVATION DESIGN, NORTH OF WOOD STREET

BERM PLANS
NORTH AND SOUTH OF
WOOD STREET BRIDGE

COMMONWEALTH OF MASSACHUSETTS
MARK T. OTTEN
CIVIL
No. 43312
REGISTERED PROFESSIONAL ENGINEER

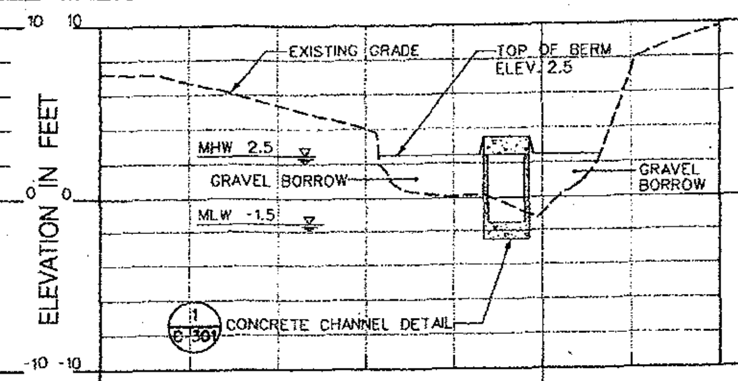
Reference number:
C-103

Sheet 5 of 20



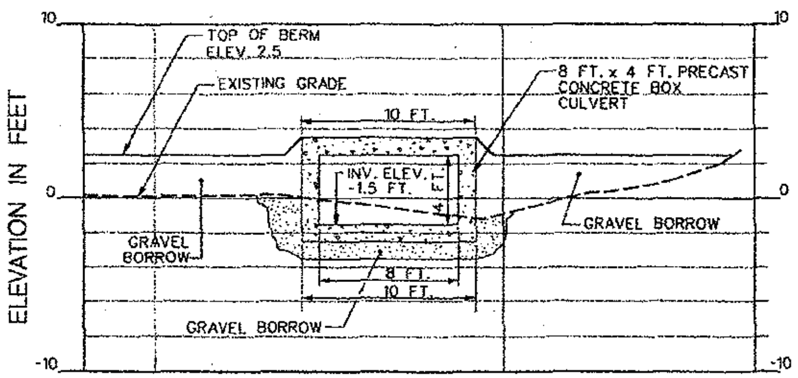
A C-103 CROSS–SECTION NORTH BERM

SCALE: 1 INCH = 5 FEET HORIZONTAL
1 INCH = 5 FEET VERTICAL



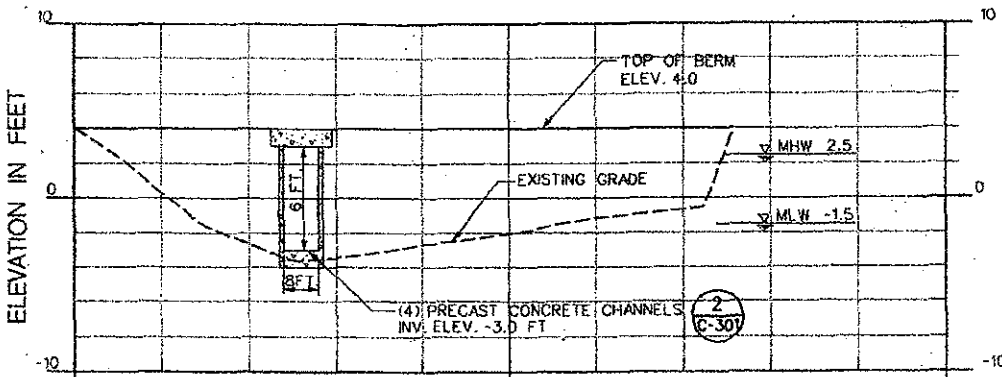
B C-103 CROSS–SECTION NORTH BERM

SCALE: 1 INCH = 20 FEET HORIZONTAL
1 INCH = 5 FEET VERTICAL



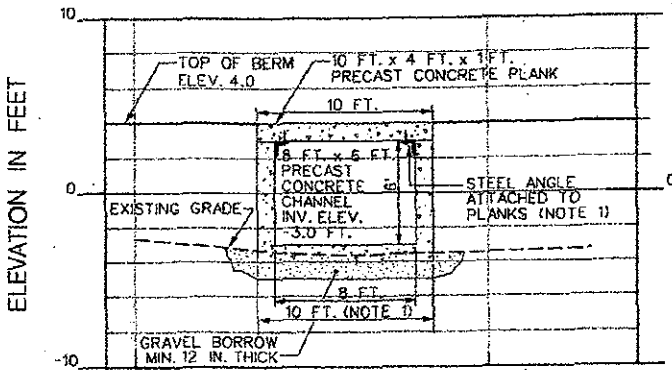
1 C-301 NORTH BERM PRECAST CONCRETE CULVERT DETAIL

SCALE: 1 INCH = 5 FEET HORIZONTAL
1 INCH = 5 FEET VERTICAL



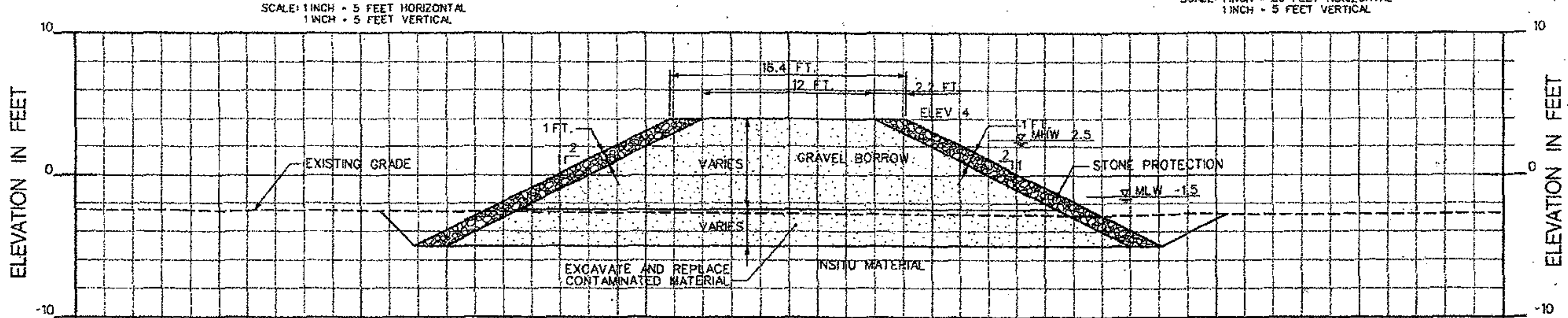
C C-103 CROSS–SECTION SOUTH BERM

SCALE: 1 INCH = 20 FEET HORIZONTAL
1 INCH = 5 FEET VERTICAL



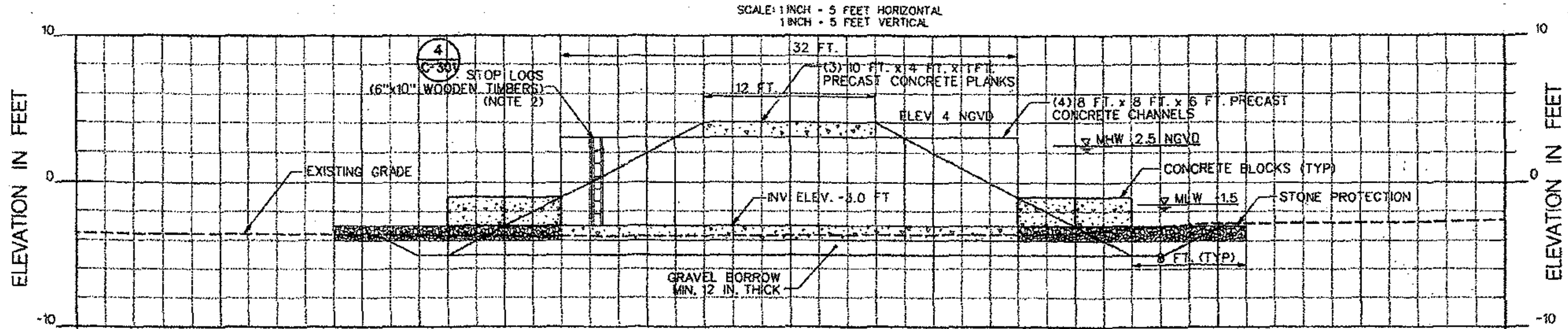
2 C-301 SOUTH BERM PRECAST CONCRETE CHANNEL DETAIL

SCALE: 1 INCH = 5 FEET HORIZONTAL
1 INCH = 5 FEET VERTICAL



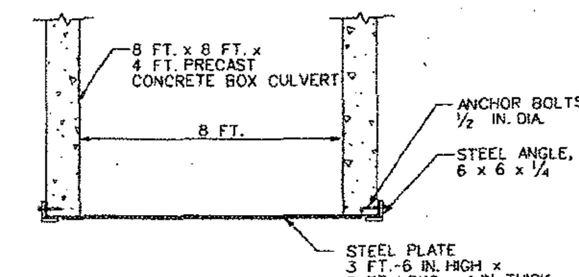
D C-103 CROSS–SECTION SOUTH BERM

SCALE: 1 INCH = 5 FEET HORIZONTAL
1 INCH = 5 FEET VERTICAL



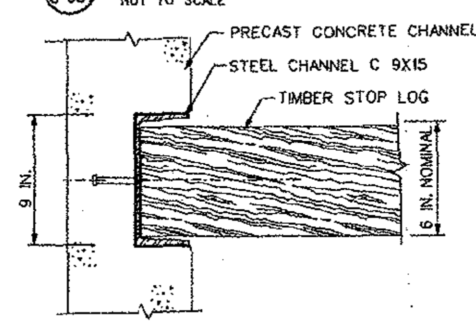
E C-103 CROSS–SECTION SOUTH BERM CHANNEL

SCALE: 1 INCH = 5 FEET HORIZONTAL
1 INCH = 5 FEET VERTICAL



3 C-301 TOP VIEW NORTH BERM END PLATE DETAIL

NOT TO SCALE



4 C-301 TOP VIEW SOUTH BERM STOP LOGS DETAIL

NOT TO SCALE

COMMONWEALTH OF MASSACHUSETTS MARK T. OTTEN CIVIL No. 43312 REGISTERED PROFESSIONAL ENGINEER

NOTES:

1. Precast concrete channels and top planks shall be designed and fabricated by supplier. Inside opening dimensions shall be as shown on drawings. Wall thickness and internal reinforcing steel required shall be calculated by supplier. Channels shall include design and installation of devices to pull individual sections together in the field. Top planks shall be designed to support HS20-44 loading.
2. Stop logs shall be 6 inch by 10 inch timbers 8 feet 4 inches long.
3. Vertical datum (NGVD)

ISSUED FOR CONSTRUCTION

US Army Corps of Engineers
New England District

Symbol	Description	Date	Appr.
1	ISSUED FOR CONSTRUCTION	09/18/02	M.O.
0	ISSUED FOR 90% DESIGN SUBMITTAL	07/23/02	M.O.
A	ISSUED FOR USACE REVIEW	06/20/02	M.O.

Designed by: A. TOGHAN
Drawn by: G. POTVIN
Reviewed by: M. OTTEN
Submitted by:
Date: 09/18/02
Rev. 1
Design file no. WS3204-C-301m.dgn
Drawing code:
File name:
Plot date:
Plot scale:

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
CONCORD, MASSACHUSETTS

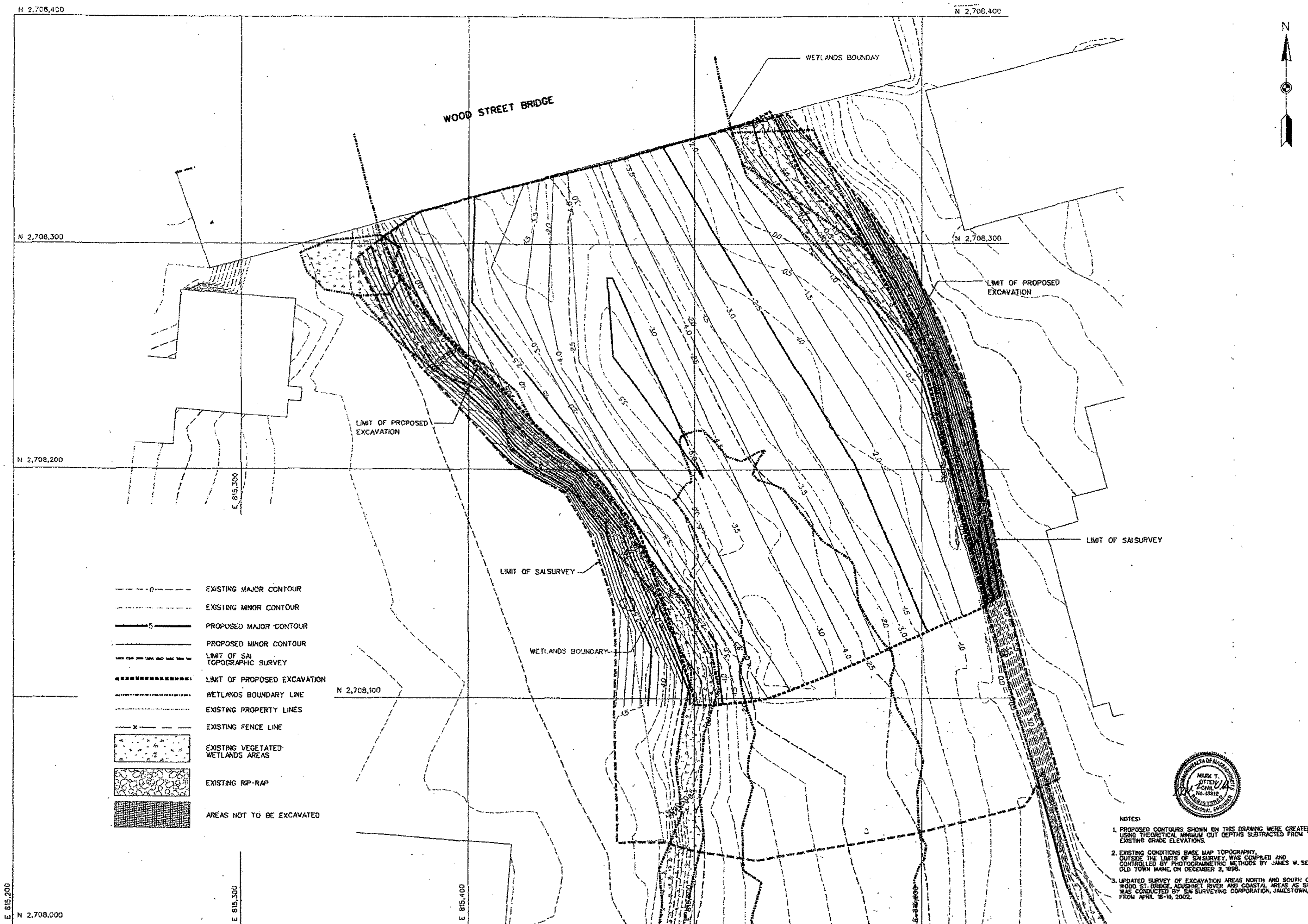
FOSTER WHEELER ENVIRONMENTAL CORP.
133 FEDERAL STREET
BOSTON, MASSACHUSETTS

NEW BEDFORD HARBOR SUPERFUND SITE
NEW BEDFORD, MASSACHUSETTS
SEDIMENT EXCAVATION DESIGN, NORTH OF WOOD STREET

BERM CROSS SECTIONS - NORTH AND SOUTH OF WOOD STREET BRIDGE

Reference number: C-301

Sheet 6 of 20



NOTES:

1. PROPOSED CONTOURS SHOWN ON THIS DRAWING WERE CREATED USING THEORETICAL MINIMUM CUT DEPTHS SUBTRACTED FROM THE EXISTING GRADE ELEVATIONS.
2. EXISTING CONDITIONS BASE MAP TOPOGRAPHY, OUTSIDE THE LIMITS OF SAI SURVEY, WAS COMPILED AND CONTROLLED BY PHOTOGRAMMETRIC METHODS BY JAMES W. SEWALL, OLD TOWN MAINE, ON DECEMBER 2, 1998.
3. UPDATED SURVEY OF EXCAVATION AREAS NORTH AND SOUTH OF WOOD ST. BRIDGE, ACUSHNET RIVER AND COASTAL AREAS AS SHOWN, WAS CONDUCTED BY SAI SURVEYING CORPORATION, JAMESTOWN, RI, FROM APRIL 15-18, 2002.

MARK T. OTTEN CIVIL No. 45312 REGISTERED PROFESSIONAL ENGINEER — COMMONWEALTH OF MASSACHUSETTS

SCALE IN FEET
1 INCH = 20 FEET
HORIZONTAL DATUM IS NAD83 MASSACHUSETTS STATE PLANE
VERTICAL DATUM IS NGVD29

10' 0 20' 40' 60' FEET
SCALE 1"= 20'

ISSUED FOR CONSTRUCTION

US Army Corps of Engineers
New England District

Symbol	Description	Date	Appr.
2	REVISED EXISTING TOPO	11/04/02	M.O.
1	ISSUED FOR CONSTRUCTION	09/18/02	M.O.
0	ISSUED FOR 90% DESIGN SUBMITTAL	07/23/02	M.O.
A	ISSUED FOR USACE REVIEW	06/20/02	M.O.

Designed by: L. TOROYAN
Drawn by: G. KRYSTYNAK
Reviewed by: M. OTTEN
Submitted by:
Date: 09/18/02
Rev. 2
Design file no. WS2204-0-104-21K.DGN
Drawing code:
File name:
Plot date:
Plot scale:

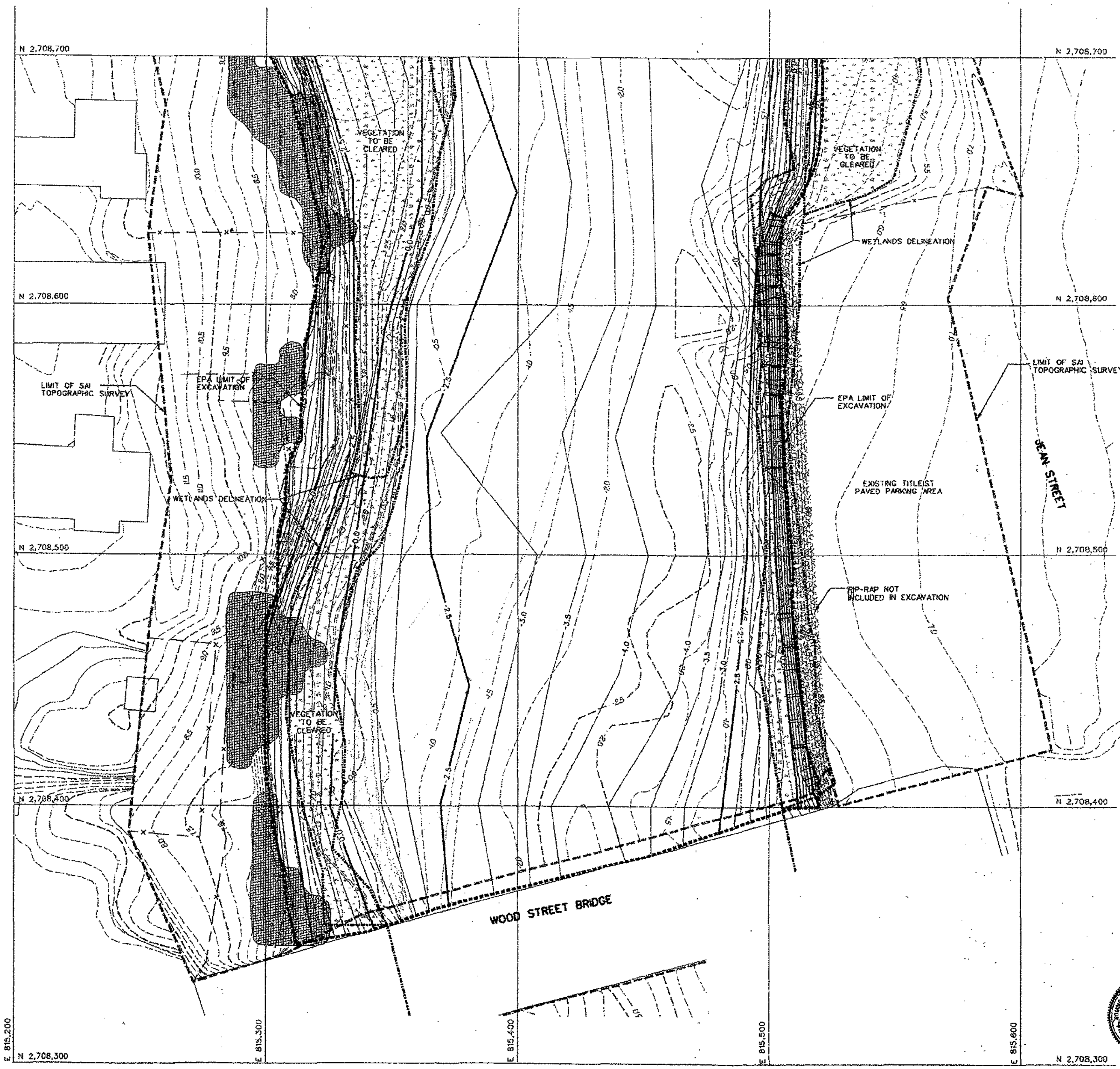
U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
CONCORD, MASSACHUSETTS

FOSTER WHEELER
ENVIRONMENTAL CORP.
133 FEDERAL STREET
BOSTON, MASSACHUSETTS

NEW BEDFORD HARBOR SUPERFUND SITE
NEW BEDFORD, MASSACHUSETTS
SEDIMENT EXCAVATION DESIGN, NORTH OF WOOD STREET

WOOD STREET EXCAVATION
N 2,708,000 - N 2,708,400

Reference number:
C-104
Sheet 7 of 20



EXISTING MAJOR CONTOUR

EXISTING MINOR CONTOUR

PROPOSED MAJOR CONTOUR

PROPOSED MINOR CONTOUR

LIMIT OF SAI TOPOGRAPHIC SURVEY

EPA LIMIT OF EXCAVATION

WETLANDS BOUNDARY LINE

EXISTING PROPERTY LINES

EXISTING FENCE LINE

EXISTING VEGETATED WETLANDS AREAS

EXISTING RIP-RAP

AREAS NOT TO BE EXCAVATED

NOTES:

1. PROPOSED CONTOURS SHOWN ON THIS DRAWING WERE CREATED USING THEORETICAL MINIMUM CUT DEPTHS SUBTRACTED FROM THE EXISTING GRADE ELEVATIONS.

2. EXISTING CONDITIONS BASE MAP TOPOGRAPHY, OUTSIDE THE LIMITS OF SAI SURVEY, WAS COMPILED AND CONTROLLED BY PHOTOGRAMMETRIC METHODS BY JAMES W. SEWALL, OLD TOWN MAINE, ON DECEMBER 2, 1958.

3. UPDATED SURVEY OF EXCAVATION AREAS NORTH AND SOUTH OF WOOD ST. BRIDGE, ACUSHNET RIVER AND COASTAL AREAS AS SHOWN, WAS CONDUCTED BY SAI SURVEYING CORPORATION, JAMESTOWN, RI, FROM APRIL 18-19, 2002.

COMMONWEALTH OF MASSACHUSETTS — MARK T. OTTEN — CIVIL — No. 43312 — REGISTERED PROFESSIONAL ENGINEER

SCALE IN FEET
1 INCH = 20 FEET
HORIZONTAL DATUM IS NAD83 MASSACHUSETTS STATE PLANE
VERTICAL DATUM IS NGVD29

10' 0 20' 40' 60' FEET

SCALE 1"= 20'

ISSUED FOR CONSTRUCTION

US Army Corps of Engineers
New England District

Symbol	Description	Date	Appr.
2	REVISED EXISTING TOPO	11/04/02	M.O.
1	ISSUED FOR CONSTRUCTION	09/18/02	M.O.
0	ISSUED FOR 90% DESIGN SUBMITTAL	07/23/02	M.O.
A	ISSUED FOR USACE REVIEW	06/10/02	M.O.

Designed by: L. TOKOYAN	Date: 09/18/02	Rev. 2
Drawn by: G. KRYSTYNIAK	Design file no. WE5201-C-105XXX.DGN	
Reviewed by: M. OTTEN	Drawing code:	
Submitted by:	File name: Plot date: Plot scale:	

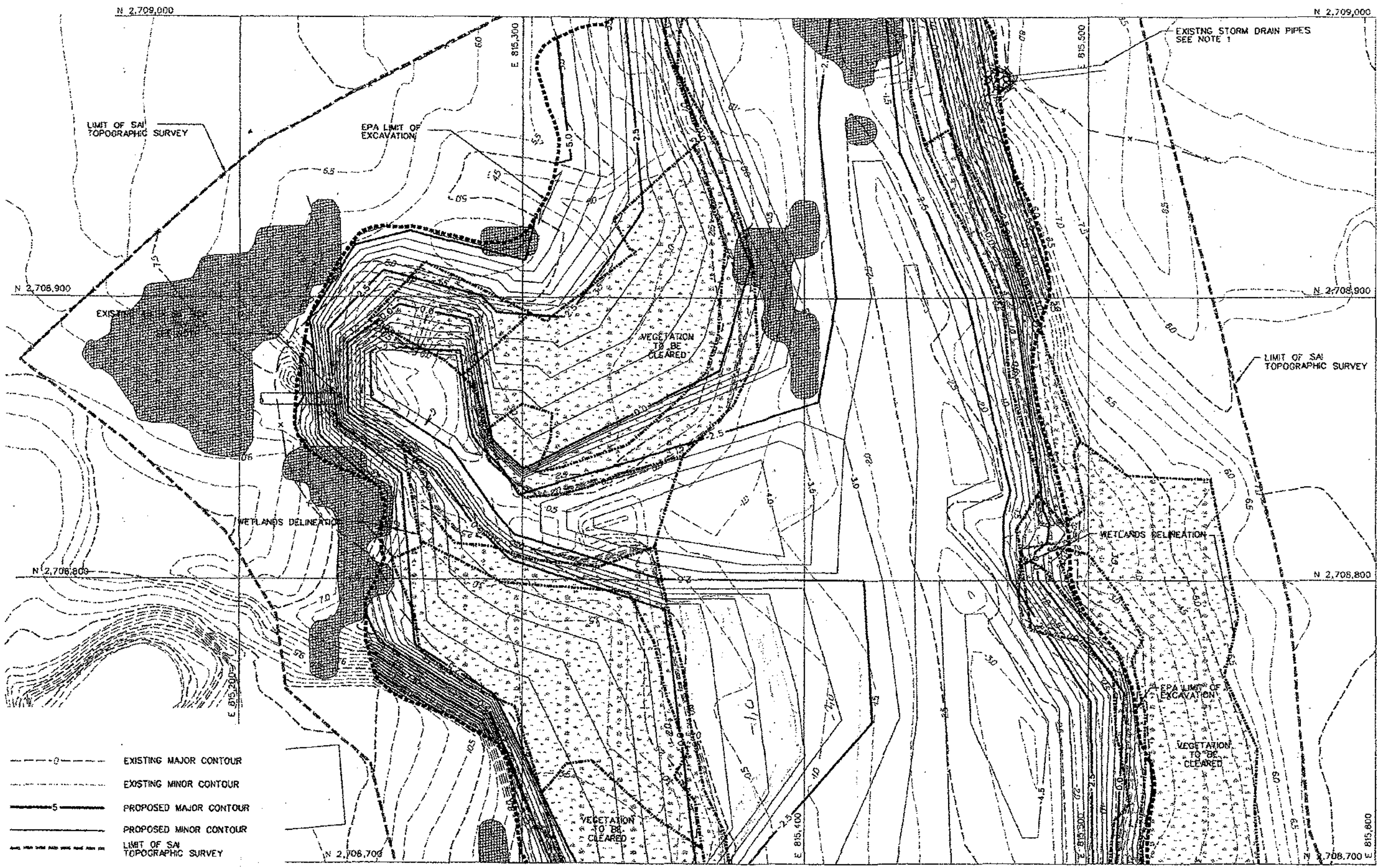
U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
CONCORD, MASSACHUSETTS

FOSTER WHEELER ENVIRONMENTAL CORP.
133 FEDERAL STREET
BOSTON, MASSACHUSETTS

NEW BEDFORD HARBOR SUPERFUND SITE
NEW BEDFORD, MASSACHUSETTS
SEDIMENT EXCAVATION DESIGN, NORTH OF WOOD STREET

WOOD STREET EXCAVATION
N 2,708,300 – N 2,708,700

Reference number:
C-105
Sheet 8 of 20



(line symbol)	EXISTING MAJOR CONTOUR
(line symbol)	EXISTING MINOR CONTOUR
(line symbol)	PROPOSED MAJOR CONTOUR
(line symbol)	PROPOSED MINOR CONTOUR
(line symbol)	LIMIT OF SAI TOPOGRAPHIC SURVEY
(line symbol)	EPA LIMIT OF EXCAVATION
(line symbol)	WETLANDS BOUNDARY LINE
(line symbol)	EXISTING PROPERTY LINES
(line symbol)	EXISTING FENCE LINE
(hatch pattern)	EXISTING VEGETATED WETLANDS AREAS
(hatch pattern)	EXISTING RIP-RAP
(hatch pattern)	AREAS NOT TO BE EXCAVATED

NOTE:

1. PROTECT EXISTING PIPES AND INSTALL NEW FILL AND RIP RAP AS SHOWN ON DRAWING L-102

NOTES:

1. PROPOSED CONTOURS SHOWN ON THIS DRAWING WERE CREATED USING THEORETICAL MINIMUM CUT DEPTHS SUBTRACTED FROM THE EXISTING GRADE ELEVATIONS.
2. EXISTING CONDITIONS BASE MAP TOPOGRAPHY, OUTSIDE THE LIMITS OF SAI SURVEY, WAS COMPILED AND CONTROLLED BY PHOTOGRAMMETRIC METHODS BY JAMES W. SEWALL, OLD TOWN MAINE, ON DECEMBER 2, 1998.
3. UPDATED SURVEY OF EXCAVATION AREAS NORTH AND SOUTH OF WOOD ST. BRIDGE, ACUSHNET RIVER AND COASTAL AREAS AS SHOWN, WAS CONDUCTED BY SAI SURVEYING CORPORATION, JAMESTOWN, RI, FROM APRIL 16-19, 2002.

SCALE IN FEET
1 INCH = 20 FEET
HORIZONTAL DATUM IS NAD83 MASSACHUSETTS STATE PLANE
VERTICAL DATUM IS NGVD29

SCALE 1"= 20'

MARK T. OTTEN CIVIL No. 43712 REGISTERED PROFESSIONAL ENGINEER, COMMONWEALTH OF MASSACHUSETTS

ISSUED FOR CONSTRUCTION

US Army Corps of Engineers
New England District

Symbol	Description	Date	Appr.
2	REVISED EXISTING TOPO	11/04/02	M.O.
1	ISSUED FOR CONSTRUCTION	09/18/02	M.O.
0	ISSUED FOR BOX DESIGN SUBMITTAL	07/23/02	M.O.
A	ISSUED FOR USACE REVIEW	06/20/02	M.O.

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
CONCORD, MASSACHUSETTS

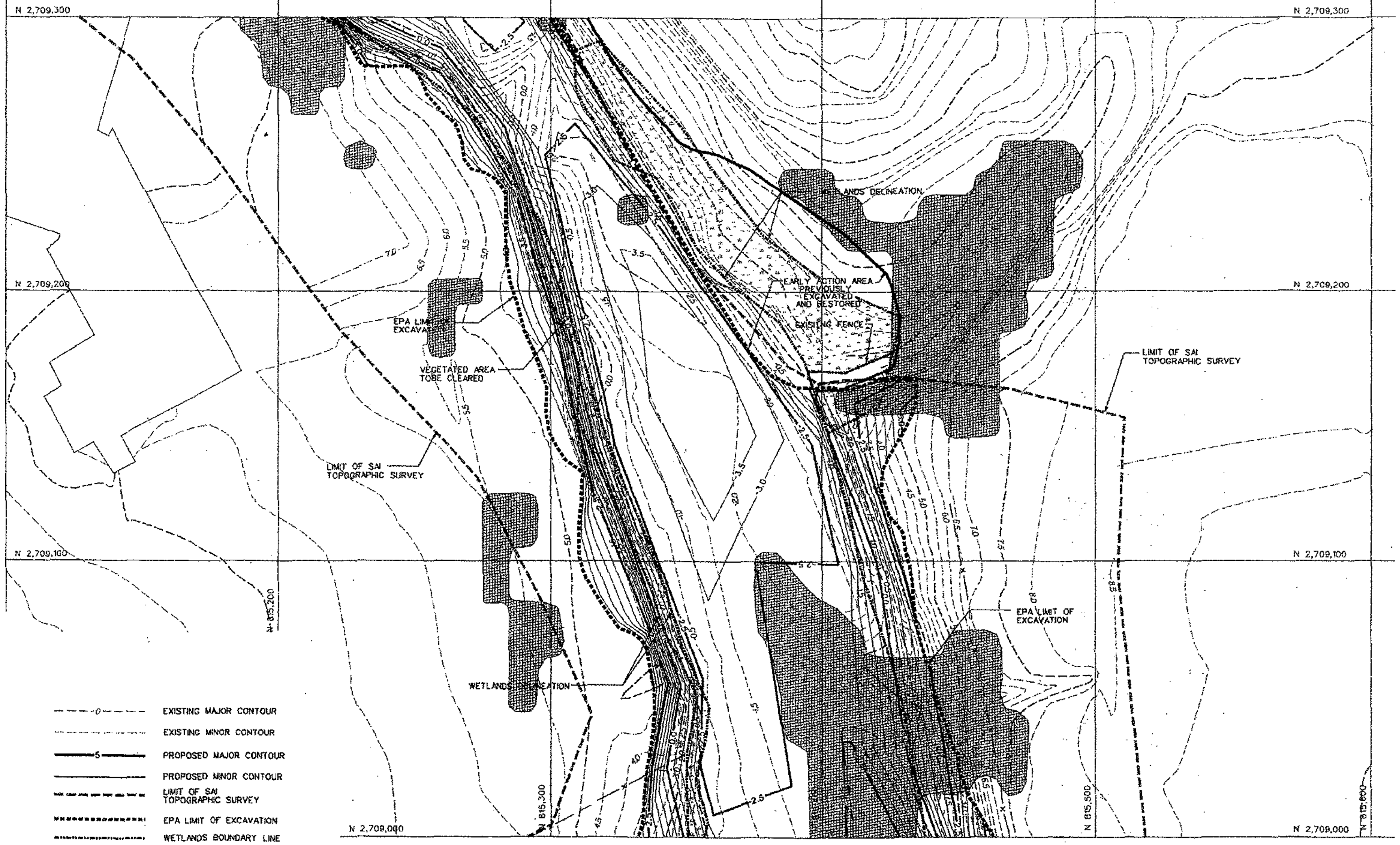
FOSTER WHEELER ENVIRONMENTAL CORP.
133 FEDERAL STREET
BOSTON, MASSACHUSETTS

Designed by: L. TOROYAN
Drawn by: G. KRYSTYNIAK
Reviewed by: M. OTTEN
Submitted by:
Date: 09/18/02
Rev.: 2
Design file no. WS2204-0-108210.DGN
Drawing code:
File name:
Plot date:
Plot scale:

NEW BEDFORD HARBOR SUPERFUND SITE
NEW BEDFORD, MASSACHUSETTS
SEDIMENT EXCAVATION DESIGN, NORTH OF WOOD STREET

WOOD STREET EXCAVATION
N 2,708,700 – N 2,709,000

Reference number: C-106
Sheet 9 of 20



EXISTING MAJOR CONTOUR

EXISTING MINOR CONTOUR

PROPOSED MAJOR CONTOUR

PROPOSED MINOR CONTOUR

LIMIT OF SAI TOPOGRAPHIC SURVEY

EPA LIMIT OF EXCAVATION

WETLANDS BOUNDARY LINE

EXISTING PROPERTY LINES

EXISTING FENCE LINE

EXISTING VEGETATED WETLANDS AREAS

EXISTING RIP-RAP

AREAS NOT TO BE EXCAVATED

NOTES:

1. PROPOSED CONTOURS SHOWN ON THIS DRAWING WERE CREATED USING THEORETICAL MINIMUM CUT DEPTHS SUBTRACTED FROM THE EXISTING GRADE ELEVATIONS.
2. EXISTING CONDITIONS BASE MAP TOPOGRAPHY, OUTSIDE THE LIMITS OF SAI SURVEY, WAS COMPILED AND CONTROLLED BY PHOTOGRAMMETRIC METHODS BY JAMES W. SEWALL, OLD TOWN MAINE, ON DECEMBER 2, 1998.
3. UPDATED SURVEY OF EXCAVATION AREAS NORTH AND SOUTH OF WOOD ST. BRIDGE, ACUSHNET RIVER AND COASTAL AREAS AS SHOWN, WAS CONDUCTED BY SAI SURVEYING CORPORATION, JAMESTOWN, RI, FROM APRIL 18-19, 2002.

SCALE IN FEET
1 INCH = 20 FEET
HORIZONTAL DATUM IS NAD83 MASSACHUSETTS STATE PLANE
VERTICAL DATUM IS NGVD29

SCALE 1"= 20"

ISSUED FOR CONSTRUCTION

MARK T. OTTEN CIVIL No. 43312 REGISTERED PROFESSIONAL ENGINEER — COMMONWEALTH OF MASSACHUSETTS

US Army Corps of Engineers
New England District

Symbol	Description	Date	Appr.
2	REVISED EXISTING TOPO	11/04/02	M.O.
1	ISSUED FOR CONSTRUCTION	09/18/02	M.O.
0	ISSUED FOR 90% DESIGN SUBMITTAL	07/23/02	M.O.
A	ISSUED FOR USACE REVIEW	06/20/02	M.O.

Designed by: L. TOROYAN
Drawn by: G. KRYSTYNIAK
Reviewed by: M. OTTEN
Submitted by:
Date: 09/18/02
Rev. 2
Design file no. WS3204-C-1072XX.DGN
Drawing code:
File name:
Plot date:
Plot scale:

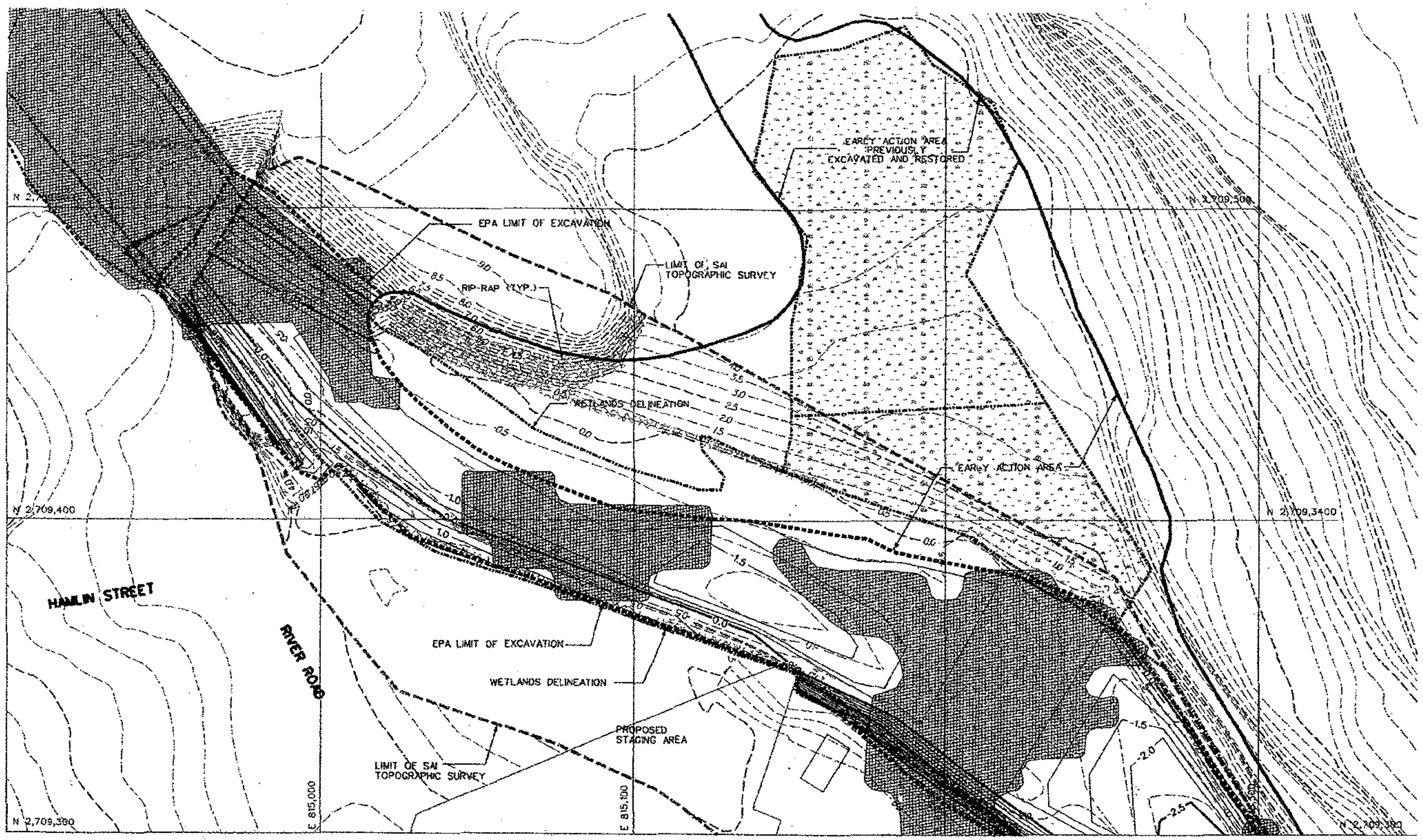
U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
CONCORD, MASSACHUSETTS

FOSTER WHEELER ENVIRONMENTAL CORP.
133 FEDERAL STREET
BOSTON, MASSACHUSETTS

NEW BEDFORD HARBOR SUPERFUND SITE
NEW BEDFORD, MASSACHUSETTS
SEDIMENT EXCAVATION DESIGN, NORTH OF WOOD STREET

WOOD STREET EXCAVATION
N 2,709,000 – N 2,709,300

Reference number:
C-107
Sheet 10 of 20



EXISTING MAJOR CONTOUR

EXISTING MINOR CONTOUR

PROPOSED MAJOR CONTOUR

PROPOSED MINOR CONTOUR

LIMIT OF SAI TOPOGRAPHIC SURVEY

EPA LIMIT OF EXCAVATION

WETLANDS BOUNDARY LINE

EXISTING PROPERTY LINES

EXISTING FENCE LINE

EXISTING VEGETATED WETLANDS AREAS

EXISTING RIP-RAP

AREAS NOT TO BE EXCAVATED

NOTES:

1. PROPOSED CONTOURS SHOWN ON THIS DRAWING WERE CREATED USING THEORETICAL MINIMUM CUT DEPTHS SUBTRACTED FROM THE EXISTING GRADE ELEVATIONS.

2. EXISTING CONDITIONS BASE MAP TOPOGRAPHY, OUTSIDE THE LIMITS OF SAI SURVEY, WAS COMPILED AND CONTROLLED BY PHOTOGRAMMETRIC METHODS BY JAMES W. SEWALL, OLD TOWN MAINE, ON DECEMBER 2, 1998.

3. UPDATED SURVEY OF EXCAVATION AREAS NORTH AND SOUTH OF WOOD ST. BRIDGE, ACUSHNET RIVER AND COASTAL AREAS AS SHOWN, WAS CONDUCTED BY SAI SURVEYING CORPORATION, JAMESTOWN, RI, FROM APRIL 16-19, 2002.

SCALE IN FEET
1 INCH = 20 FEET
HORIZONTAL DATUM IS NAD83 MASSACHUSETTS STATE PLANE
VERTICAL DATUM IS NGVD29

SCALE 1"= 20'

ISSUED FOR CONSTRUCTION

US Army Corps of Engineers
New England District

Symbol	Description	Date	Appr.
2	REVISED EXISTING TOPO	11/04/02	M.O.
1	ISSUED FOR CONSTRUCTION	09/18/02	M.O.
0	ISSUED FOR 90X DESIGN SUBMITTAL	07/23/02	M.O.
A	ISSUED FOR USACE REVIEW	08/30/02	M.O.

Designed by: L. TORDYAN
Drawn by: D. KRYSTYNIAK
Reviewed by: M. OTTEN
Submitted by:
Date: 09/18/02
Rev. 2
Design file no. WS2204-C-1082XX.DGN
Drawing code:
File name:
Plot date:
Plot scale:

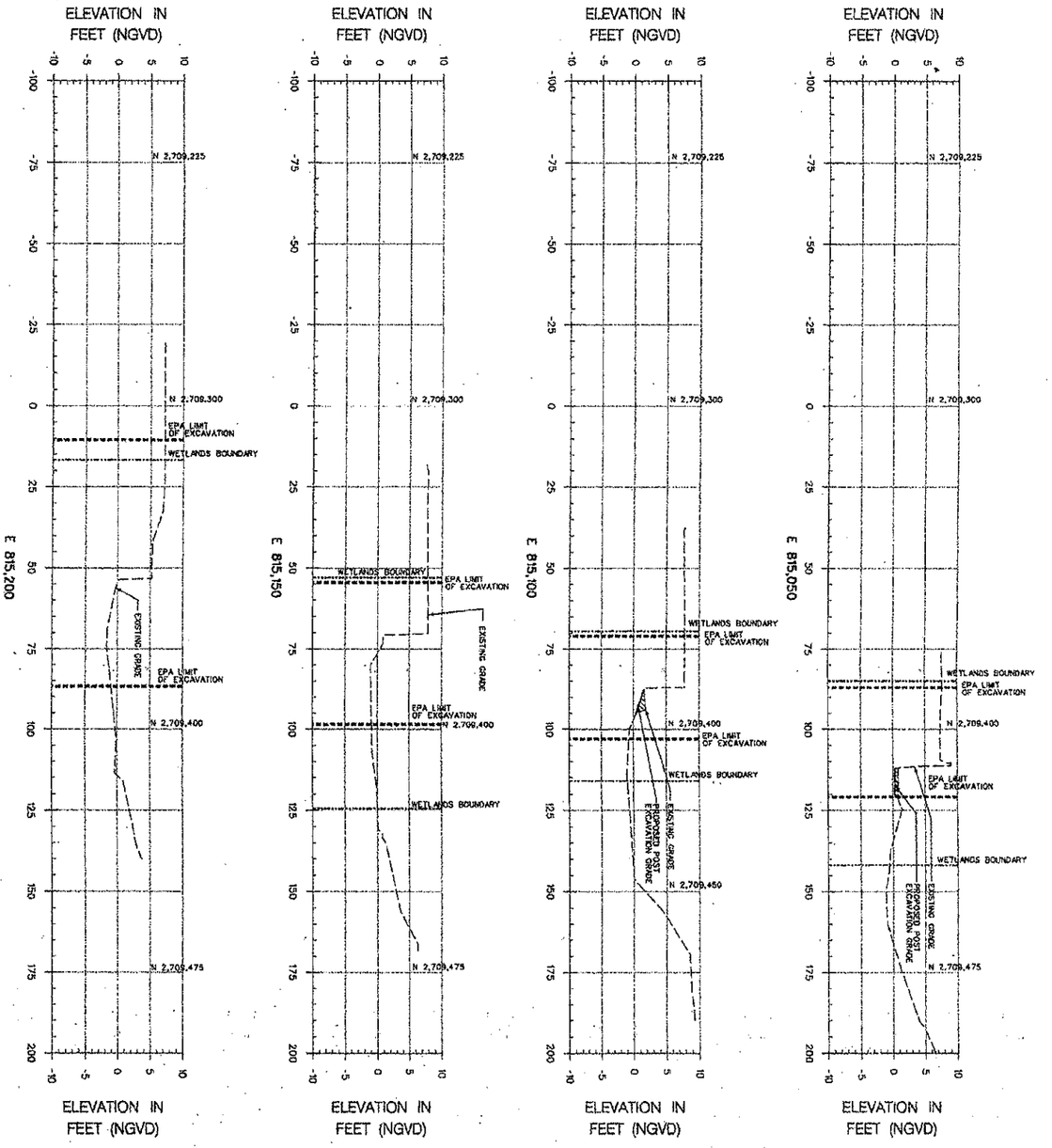
U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
CONCORD, MASSACHUSETTS

FOSTER WHEELER ENVIRONMENTAL CORP.
133 FEDERAL STREET
BOSTON, MASSACHUSETTS

NEW BEDFORD HARBOR SUPERFUND SITE
NEW BEDFORD, MASSACHUSETTS
SEDIMENT EXCAVATION DESIGN, NORTH OF WOOD STREET

WOOD STREET EXCAVATION
N 2,709,300 - N 2,709,500

Reference number:
C-108
Sheet 11 of 20



ISSUED FOR CONSTRUCTION

NEW BEDFORD HARBOR SUPERFUND SITE
NEW BEDFORD, MASSACHUSETTS
SEDIMENT EXCAVATION DESIGN, NORTH OF WOOD STREET

WOOD STREET EXCAVATION
CROSS SECTIONS
E 815,200 TO E 815,050

Reference number: C-302

Sheet 12 of 20

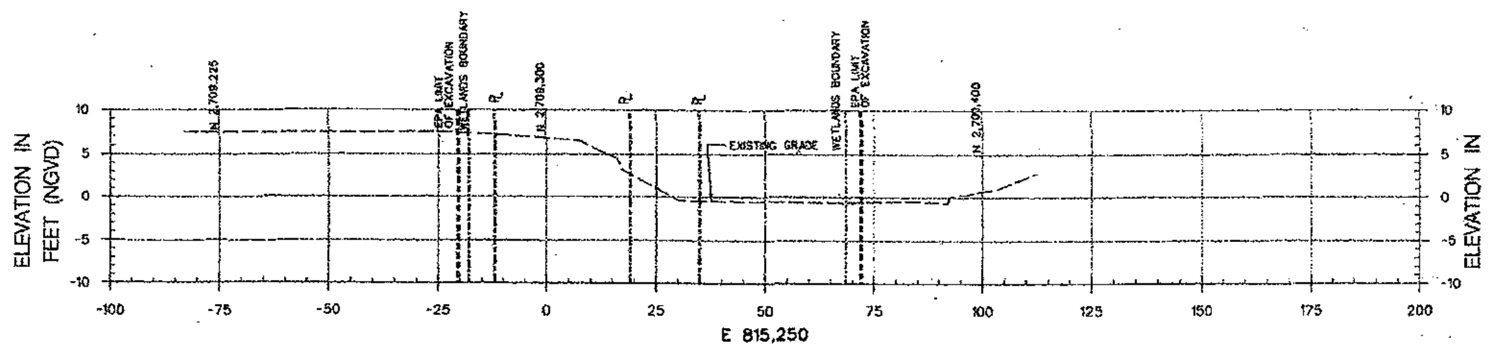
U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
CONCORD, MASSACHUSETTS

FOSTER WHEELER ENVIRONMENTAL CORP.
133 FEDERAL STREET
BOSTON, MASACHUSETTS

Designed by: L. TORDYAN	Dates: 08/15/02
Drawn by: C. KRYSTYNIAK	Rev. 1
Reviewed by: M. OTTEN	Design file no.: WS2204-C-302XX.DGN
Submitted by:	Drawing code:
	File name:
	Plot date:
	Plot scales:

Symbol	Description	Date	Appr.
1	ISSUED FOR CONSTRUCTION	09/16/02	M.O.
0	ISSUED FOR 90% DESIGN SUBMITTAL	07/23/02	M.O.
A	ISSUED FOR USACE REVIEW	06/20/02	M.O.

US Army Corps of Engineers New England District



AREA OF EXCAVATION

SCALE IN FEET
HORIZONTAL DATUM IS NAD83 MASSACHUSETTS STATE PLANE
VERTICAL DATUM IS NGVD29

VERTICAL SCALE 1"= 10'

HORIZONTAL SCALE 1"= 20'

ISSUED FOR CONSTRUCTION

US Army Corps of Engineers
New England District

Symbol	Description	Date	Appr.
1	ISSUED FOR CONSTRUCTION	09/18/02	U.O.
0	ISSUED FOR 90% DESIGN SUBMITTAL	07/23/02	M.O.
A	ISSUED FOR USACE REVIEW	08/20/02	M.O.

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
CONCORD, MASSACHUSETTS

FOSTER WHEELER
ENVIRONMENTAL CORP.
133 FEDERAL STREET
BOSTON, MASSACHUSETTS

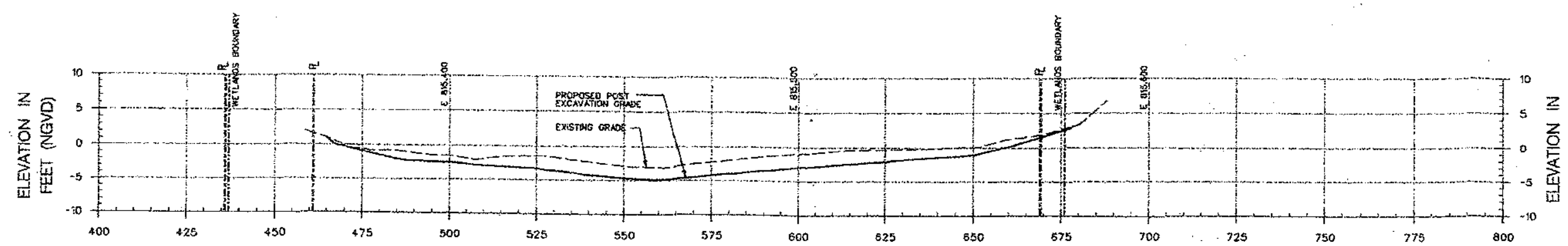
Designed by: L. TOROYAN
Drawn by: G. KRYSTYNAK
Reviewed by: M. OTTEN
Submitted by:
Date: 09/18/02
Rev. 1
Design file no. WS2264-C-303DX.DGN
Drawing code:
File name:
Plot date:
Plot scale:

NEW BEDFORD HARBOR SUPERFUND SITE
NEW BEDFORD, MASSACHUSETTS
SEDIMENT EXCAVATION DESIGN, NORTH OF WOOD STREET

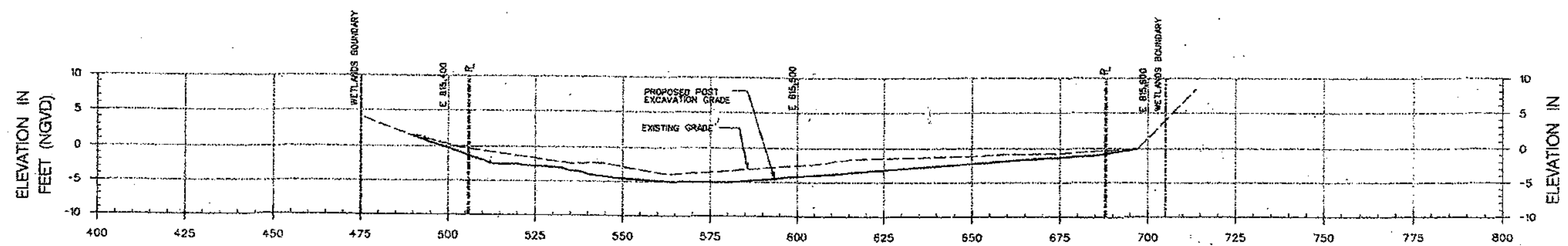
WOOD STREET EXCAVATION
CROSS SECTIONS
E 815,250

Reference number:
C-303

Sheet 13 of 20



N 2,708,300



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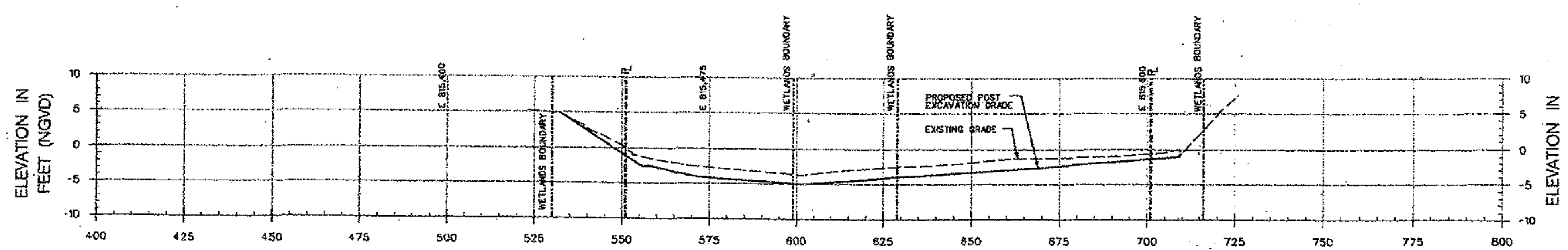

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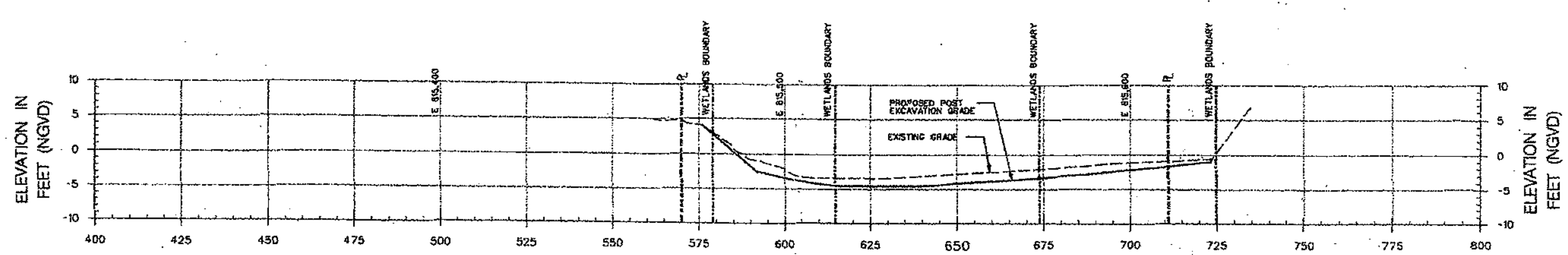

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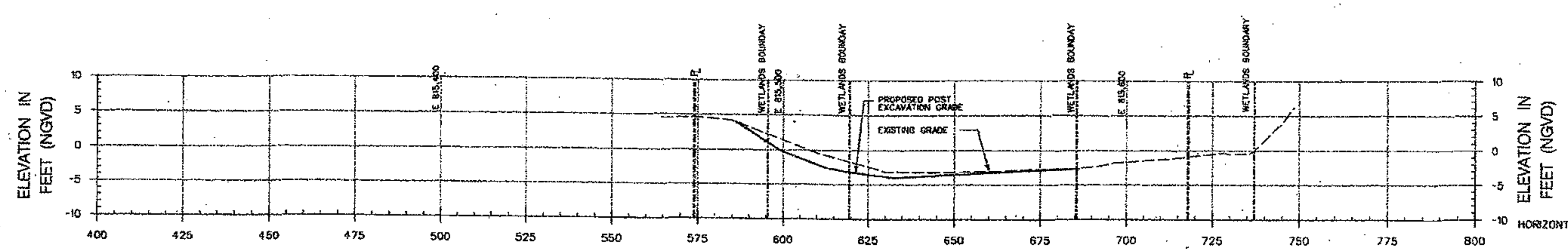


N 2,708,100

SCALE IN FEET
HORIZONTAL DATUM IS NAD83 MASSACHUSETTS STATE PLANE
VERTICAL DATUM IS NGVD29

VERTICAL SCALE 1"= 10'

HORIZONTAL SCALE 1"= 20'

ISSUED FOR CONSTRUCTION

MARK T. OTTEN CIVIL No. 43212 REGISTERED PROFESSIONAL ENGINEER — COMMONWEALTH OF MASSACHUSETTS

US Army Corps of Engineers
New England District

Symbol	Description	Date	Appr.
1	ISSUED FOR CONSTRUCTION	09/18/02	M.O.
0	ISSUED FOR 90% DESIGN SUBMITTAL	07/23/02	M.O.
4	ISSUED FOR USACE REVIEW	06/20/02	M.O.

Designed by: L. TOROYAN
Drawn by: G. KRYSTYNIAK
Reviewed by: M. OTTEN
Submitted by:

Date: 09/18/02
Rev. 1
Design file no. WS2204-C-304WK.DGN
Drawing code:
File name
Plot date:
Plot scale:

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
CONCORD, MASSACHUSETTS

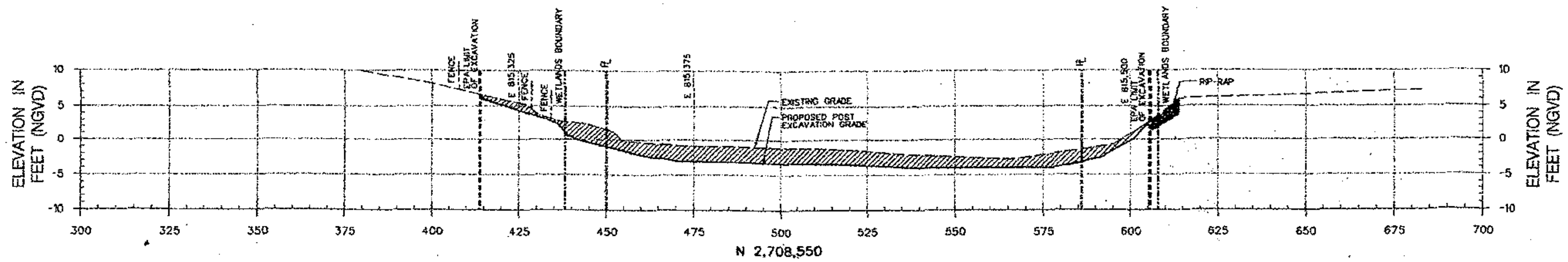
FOSTER WHEELER
ENVIRONMENTAL CORP.
133 FEDERAL STREET
BOSTON, MASSACHUSETTS

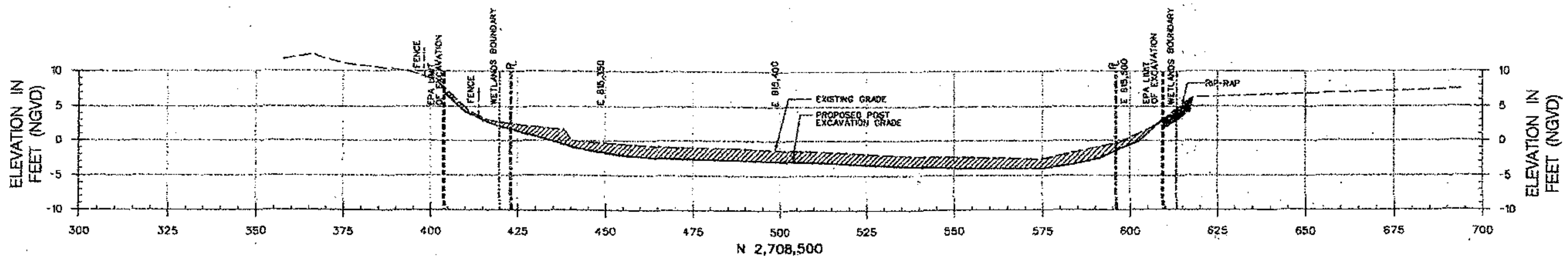
NEW BEDFORD HARBOR SUPERFUND SITE
NEW BEDFORD, MASSACHUSETTS
SEDIMENT EXCAVATION DESIGN, NORTH OF WOOD STREET

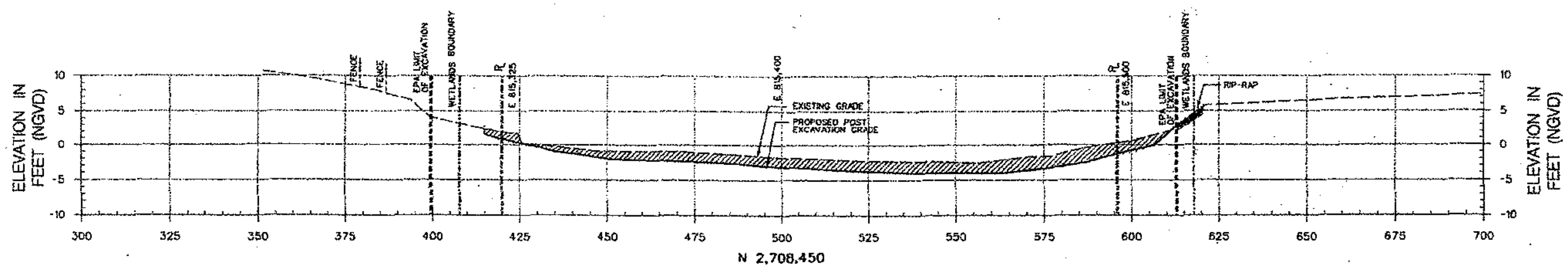
WOOD STREET EXCAVATION
CROSS SECTIONS
N 2,708,100 TO N 2,708,300

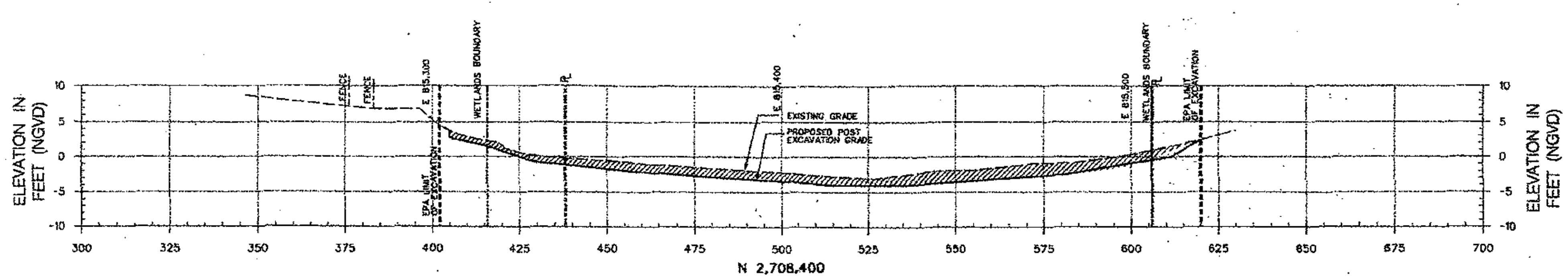
Reference number:
C-304

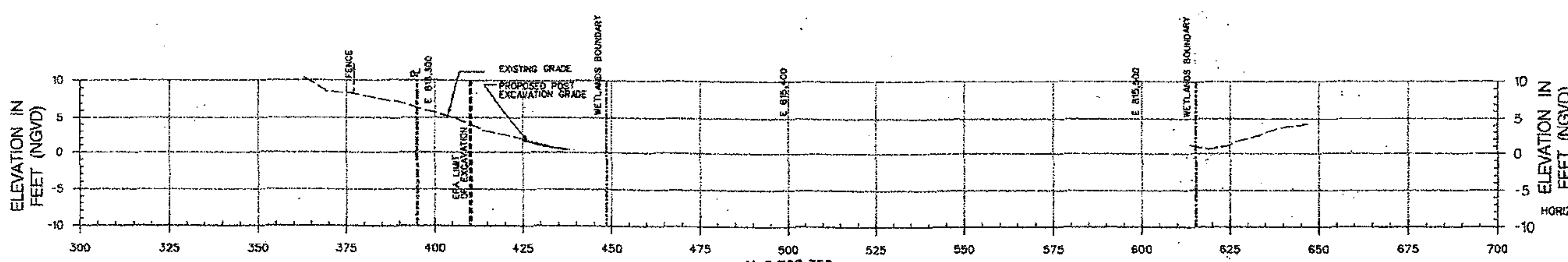
Sheet 14 of 20











AREA OF EXCAVATION

COMMONWEALTH OF MASSACHUSETTS
MARK T. OTTEN
CIVIL
No. 43312
REGISTERED PROFESSIONAL ENGINEER

SCALE IN FEET
HORIZONTAL DATUM IS NAD83 MASSACHUSETTS STATE PLANE
VERTICAL DATUM IS NGVD29

5' 0 10' 20' 30' FEET
VERTICAL SCALE 1"= 10'

10' 0 20' 40' 80' FEET
HORIZONTAL SCALE 1"= 20'

ISSUED FOR CONSTRUCTION

US Army Corps of Engineers
New England District

Symbol	Description	Date	Appr.
1	ISSUED FOR CONSTRUCTION	09/18/02	M.O.
0	ISSUED FOR 90% DESIGN SUBMITTAL	07/23/02	M.O.
A	ISSUED FOR USACE REVIEW	06/20/02	M.O.

Designed by: L. TOROYAN	Date: 09/18/02
Drawn by: G. KRYSTYNIAK	Rev. 1
Reviewed by: M. OTTEN	Design file no. WS2204-0-305cx.DGN
Submitted by:	Drawing code:
	File name:
	Plot date:
	Plot scale:

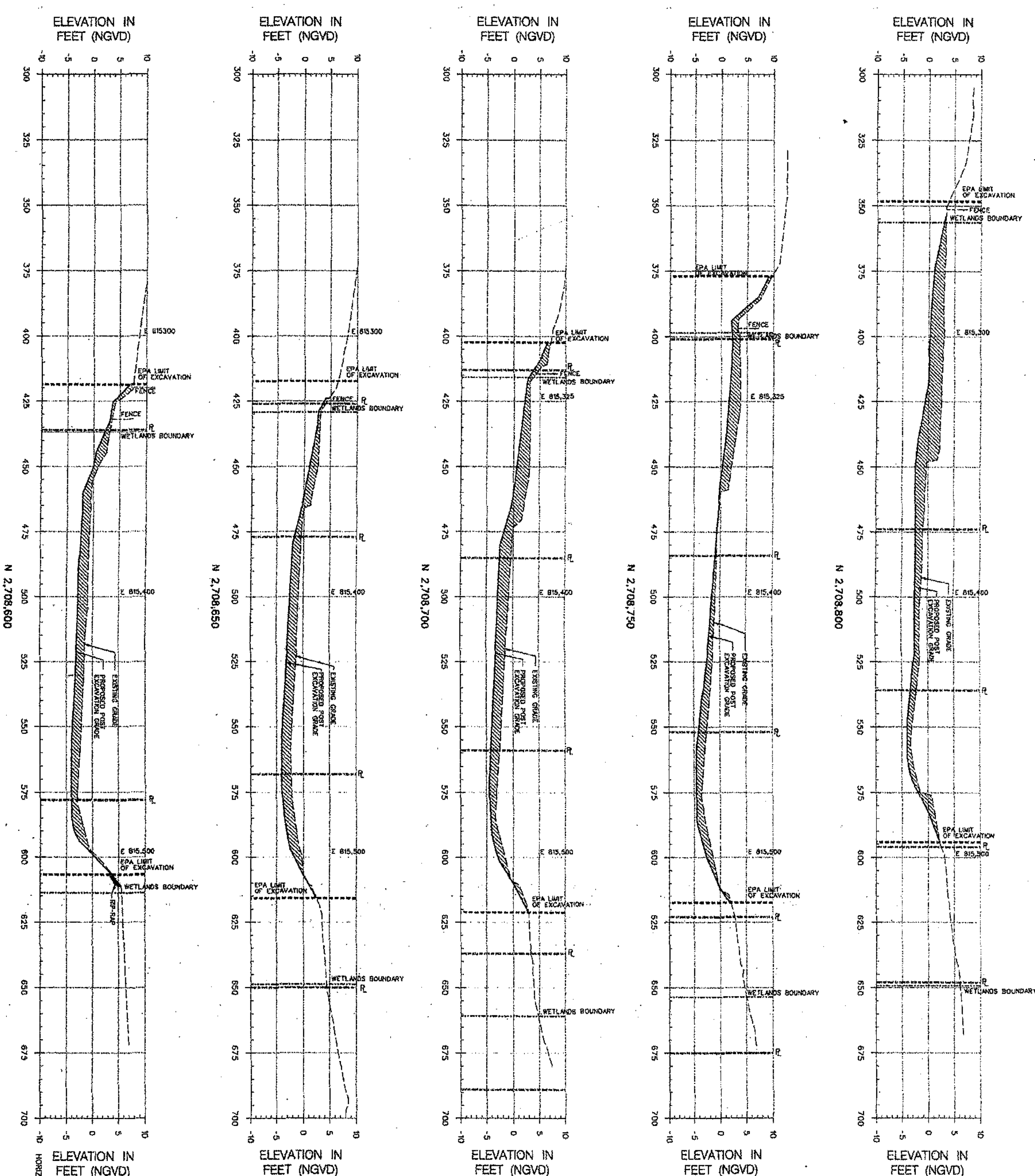
U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
CONCORD, MASSACHUSETTS

FOSTER WHEELER
ENVIRONMENTAL CORP.
133 FEDERAL STREET
BOSTON, MASSACHUSETTS

NEW BEDFORD HARBOR SUPERFUND SITE
NEW BEDFORD, MASSACHUSETTS
SEDIMENT EXCAVATION DESIGN, NORTH OF WOOD STREET

WOOD STREET EXCAVATION
CROSS SECTIONS
N 2,708,350 TO N 2,708,550

Reference number:
C-305
Sheet 15 of 20



ISSUED FOR CONSTRUCTION

AREA OF EXCAVATION

SCALE IN FEET
HORIZONTAL DATUM IS NAD83 MASSACHUSETTS STATE PLANE
VERTICAL DATUM IS NGVD29

VERTICAL SCALE 1"= 10'

HORIZONTAL SCALE 1"= 20'

Reference number: C-306
Sheet 15 of 20

NEW BEDFORD HARBOR SUPERFUND SITE
NEW BEDFORD, MASSACHUSETTS
SEDIMENT EXCAVATION DESIGN, NORTH OF WOOD STREET

WOOD STREET EXCAVATION
CROSS SECTIONS
N 2,708,600 TO N 2,708,800

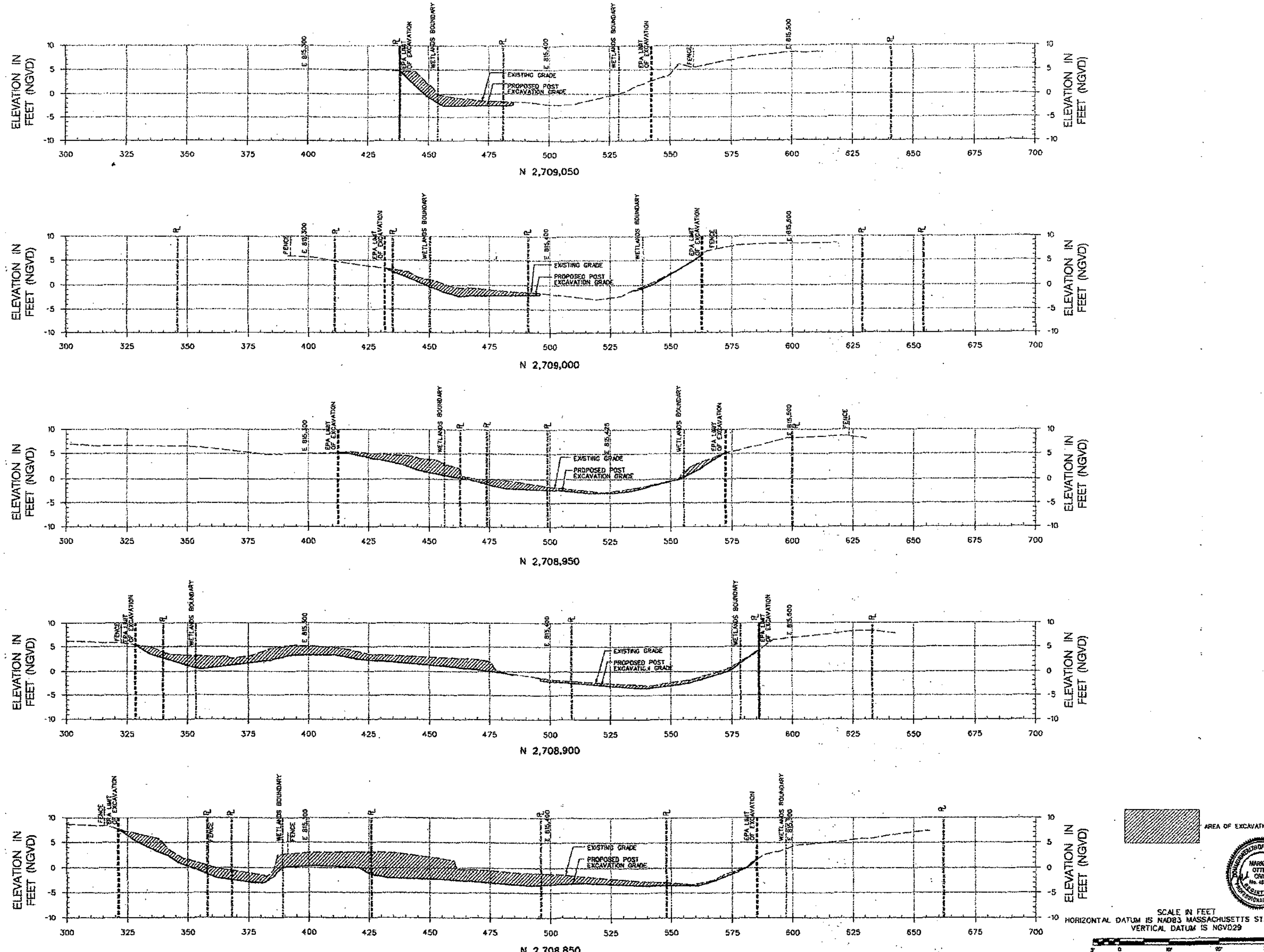
U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
CONCORD, MASSACHUSETTS

FOSTER WHEELER
ENVIRONMENTAL CORP.
133 FEDERAL STREET
BOSTON, MASSACHUSETTS

Designed by: L. TOROYAN
Drawn by: G. KRYSTYNAK
Reviewed by: M. OTTEN
Submitted by:
Date: 09/18/02
Rev. 1
Design file no. WS2204-C-306XX.DGN
Drawing code:
File name:
Plot date:
Plot scale:

Symbol	Description	Date	Appr.	Symbol	Description	Date	Appr.
1	ISSUED FOR CONSTRUCTION	09/18/02	M.O.				
0	ISSUED FOR 60% DESIGN SUBMITTAL	07/23/02	M.O.				
A	ISSUED FOR USACE REVIEW	06/20/02	M.O.				

US Army Corps of Engineers
New England District



SCALE IN FEET
HORIZONTAL DATUM IS NAD83 MASSACHUSETTS STATE PLANE
VERTICAL DATUM IS NGVD29

VERTICAL SCALE 1"= 10'

HORIZONTAL SCALE 1"= 20'

ISSUED FOR CONSTRUCTION

US Army Corps of Engineers
New England District

Symbol	Description	Date	Appr.
1	ISSUED FOR CONSTRUCTION	09/18/02	M.O.
0	ISSUED FOR 90% DESIGN SUBMITTAL	07/23/02	M.O.
A	ISSUED FOR USACE REVIEW	06/20/02	M.O.

Designed by: L. TOROYAN	Date: 09/18/02	Rev. 1
Drawn by: G. KRYSTYNIAK	Design file no. WS2304-C-307XX.DGN	
Reviewed by: M. OTTEN	Drawing code:	
Submitted by:	File name: Plot date: Plot scale:	

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
CONCORD, MASSACHUSETTS

FOSTER WHEELER
ENVIRONMENTAL CORP.
133 FEDERAL STREET
BOSTON, MASSACHUSETTS

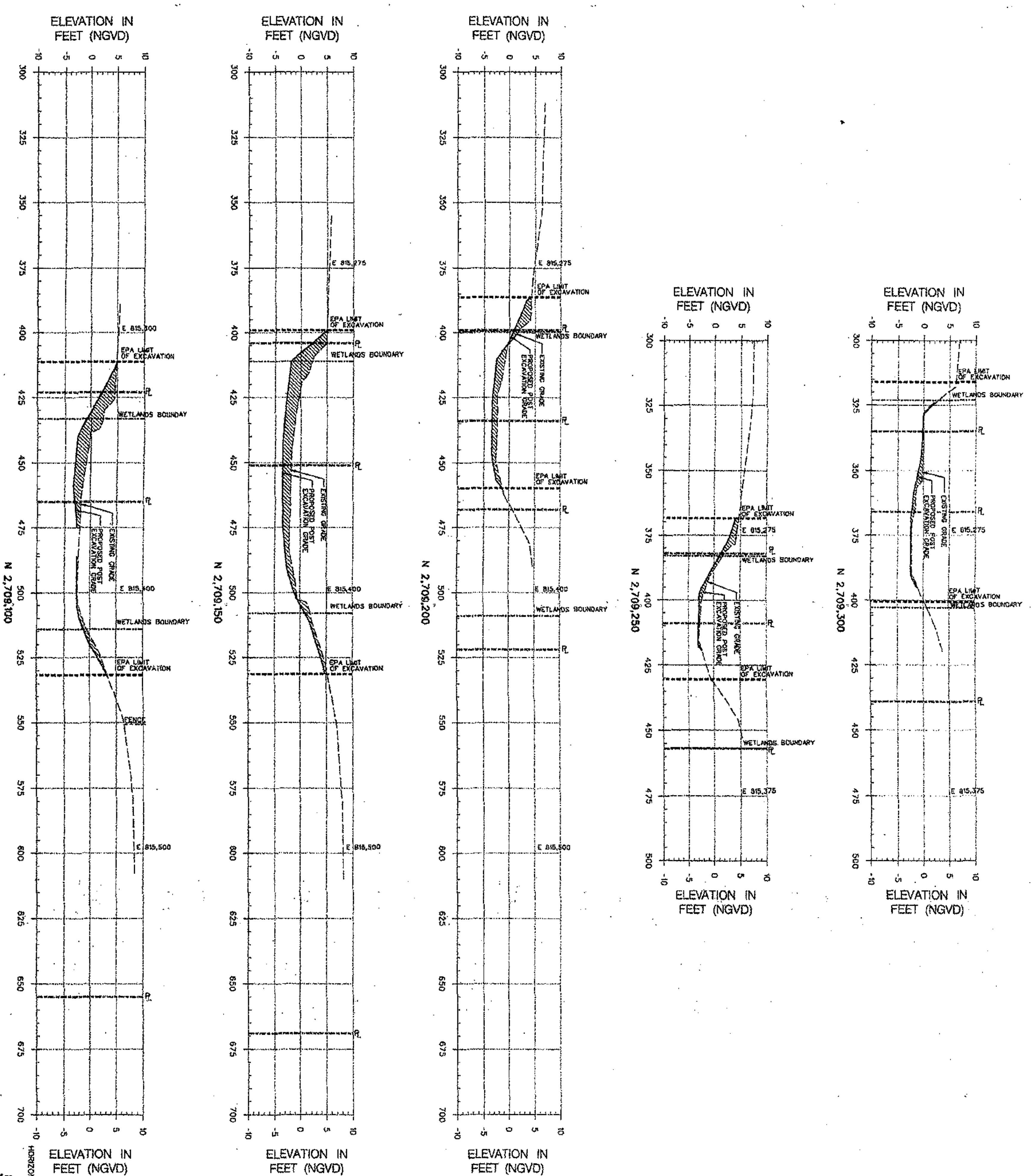
COMMONWEALTH OF MASSACHUSETTS
MARK T. OTTEN
CIVIL
No. 40316
REGISTERED PROFESSIONAL ENGINEER

NEW BEDFORD HARBOR SUPERFUND SITE
NEW BEDFORD, MASSACHUSETTS
SEDIMENT EXCAVATION DESIGN, NORTH OF WOOD STREET

WOOD STREET EXCAVATION
CROSS SECTIONS
N 2,708,850 TO N 2,709,050

Reference number:
C-307

Sheet 17 of 20



ISSUED FOR CONSTRUCTION

AREA OF EXCAVATION

SCALE IN FEET
HORIZONTAL DATUM IS NAD83 MASSACHUSETTS STATE PLANE
VERTICAL DATUM IS NGVD29

VERTICAL SCALE 1"= 10'

HORIZONTAL SCALE 1"= 20'

Reference number:
C-308
Sheet 18 of 20

NEW BEDFORD HARBOR SUPERFUND SITE
NEW BEDFORD, MASSACHUSETTS
SEDIMENT EXCAVATION DESIGN, NORTH OF WOOD STREET

WOOD STREET EXCAVATION
CROSS SECTIONS
N 2,709,100 TO N 2,209,300

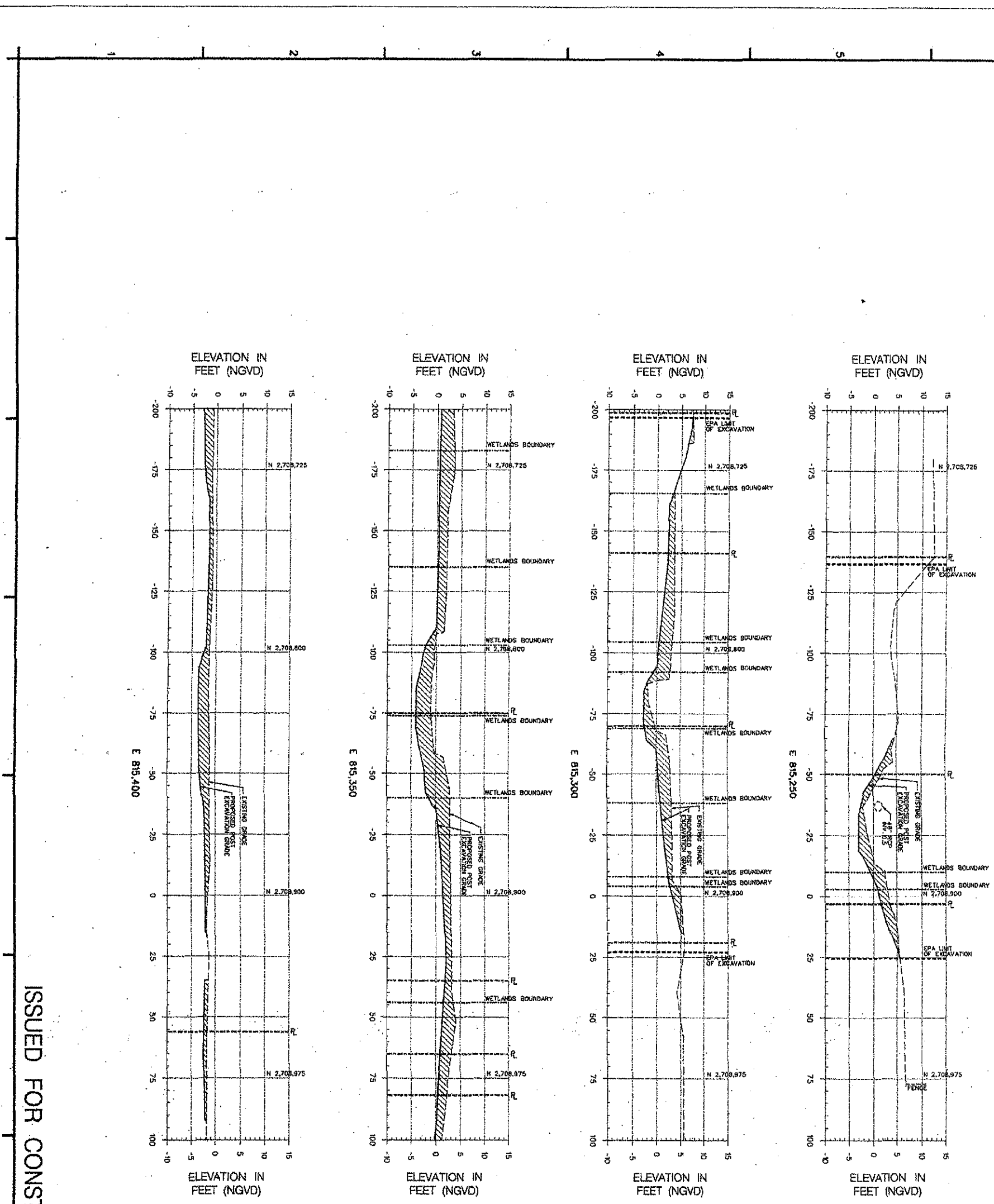
U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
CONCORD, MASSACHUSETTS

FOSTER WHEELER
ENVIRONMENTAL CORP.
133 FEDERAL STREET
BOSTON, MASSACHUSETTS

Designed by: L. TOROYAN	Date: 09/18/02	Rev. 1
Drawn by: C. KRYSTYNIAK	Design file no. WS2204-C-308IXX.DGN	
Reviewed by: M. OTTER	Drawing code:	
Submitted by:	File name: Plot date: Plot scale:	

Symbol	Description	Date	Appr.	Symbol	Description	Date	Appr.
1	ISSUED FOR CONSTRUCTION	09/18/02	M.O.				
0	ISSUED FOR 90% DESIGN SUBMITTAL	07/23/02	M.O.				
A	ISSUED FOR USACE REVIEW	05/20/02	M.O.				

US Army Corps of Engineers
New England District



ISSUED FOR CONSTRUCTION

Reference number: C-309
Sheet 19 of 20

NEW BEDFORD HARBOR SUPERFUND SITE
NEW BEDFORD, MASSACHUSETTS
SEDIMENT EXCAVATION DESIGN, NORTH OF WOOD STREET

WOOD STREET EXCAVATION
CROSS SECTIONS
E 815,400 TO E 815,250

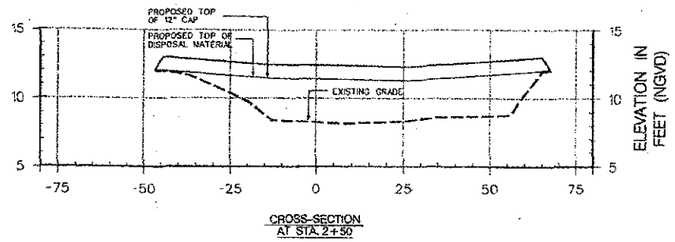
U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
CONCORD, MASSACHUSETTS

FOSTER WHEELER ENVIRONMENTAL CORP.
133 FEDERAL STREET
BOSTON, MASACHUSETTS

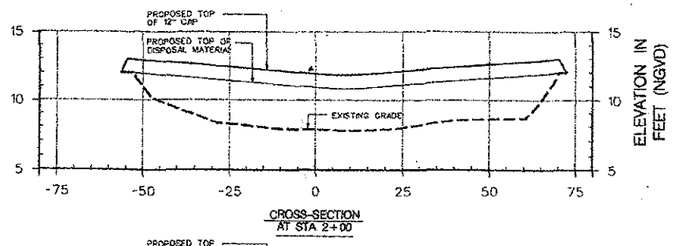
Designed by: L. TOROYAN	Date: 09/18/02 Rev. 1
Drawn by: O. KRYSTYNIAK	Design file no. WS2204-C-300DX.DGN
Reviewed by: M. OTTEN	Drawing code:
Submitted by:	File name: Plot date: Plot scale:

Symbol	Description	Date	Appr.	Symbol	Description	Date	Appr.
1	ISSUED FOR CONSTRUCTION	09/18/02	M.O.				
0	ISSUED FOR 90% DESIGN SUBMITTAL	07/23/02	M.O.				
A	ISSUED FOR USACE REVIEW	06/20/02	M.O.				

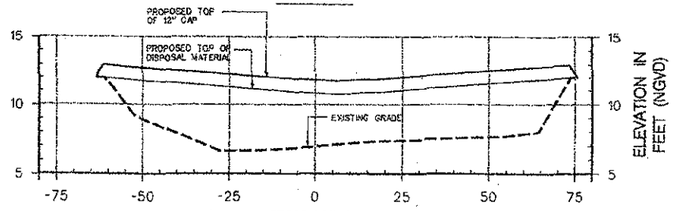
US Army Corps of Engineers
New England District



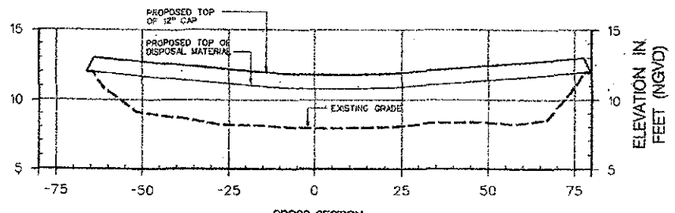
CROSS-SECTION AT STA. 2+50



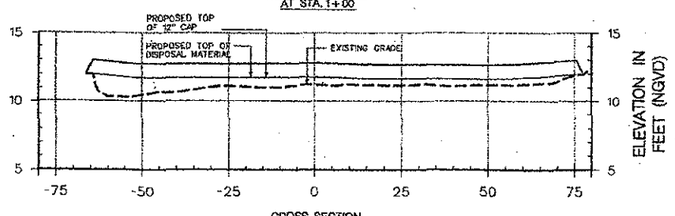
CROSS-SECTION AT STA. 2+00



CROSS-SECTION AT STA. 1+50



CROSS-SECTION AT STA. 1+00



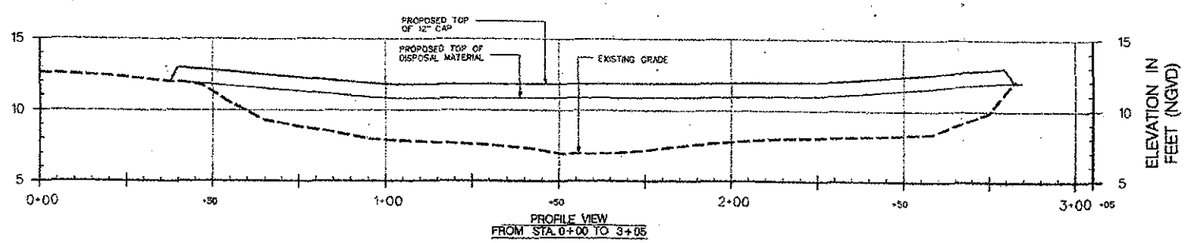
CROSS-SECTION AT STA. 0+50

DISPOSAL MATERIAL VOLUME =	2850 cu.yds.
12" CAP VOLUME =	1,250 cu.yds.

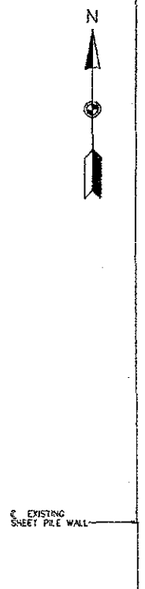
SCALE IN FEET
HORIZONTAL DATUM IS NAD83 MASSACHUSETTS STATE PLANE
VERTICAL DATUM IS NGVD29

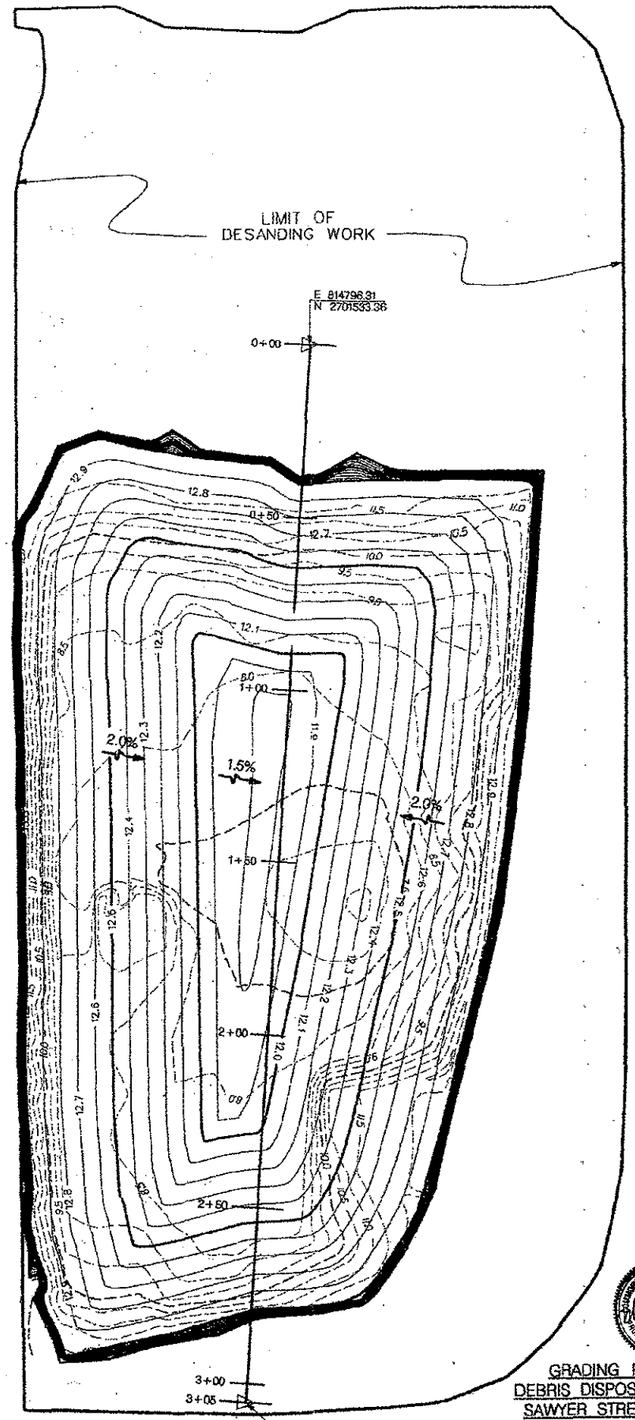
VERTICAL SCALE 1"= 5'

HORIZONTAL SCALE 1"= 20'



PROFILE VIEW FROM STA. 0+00 TO 3+05





GRADING PLAN
DEBRIS DISPOSAL AREA
SAWYER STREET SITE

SCALE IN FEET
HORIZONTAL DATUM IS NAD83 MASSACHUSETTS STATE PLANE
VERTICAL DATUM IS NGVD29

HORIZONTAL SCALE 1"= 20'

ISSUED FOR CONSTRUCTION

US Army Corps of Engineers
New England District

Symbol	Description	Date	Appr.
1	ISSUED FOR CONSTRUCTION	09/18/02	M.O.
0	ISSUED FOR 90% DESIGN SUBMITTAL	07/23/02	M.O.
A	ISSUED FOR USACE REVIEW	06/20/02	M.O.

Designed by: L. DORGAN
Drawn by: C. KRYSTOWIAK
Reviewed by: M. OTTEM
Submitted by:
Date: 09/18/02
Design file no.: WS2204-C-3390.DGN
Drawing code:
File name:
Plot date:
Plot scale:

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
CONCORD, MASSACHUSETTS

FOSTER WHEELER ENVIRONMENTAL CORP.
133 FEDERAL STREET
BOSTON, MASSACHUSETTS

NEW BEDFORD HARBOR SUPERFUND SITE
NEW BEDFORD, MASSACHUSETTS
SEDIMENT EXCAVATION DESIGN, NORTH OF WOOD STREET

CDF-DDA
SITE PLAN, CROSS SECTIONS AND PROFILE

Reference number:
C-310
Sheet 20 of 20

Appendix E.2

Compliance Demonstration Areas for Confirmatory Sampling North of Wood Street

North Berm

CDA #6
(10 ppm)

Subtidal

CDA #3
(50 ppm)

Beachcombing

CDA #2
(50 ppm)

Beachcombing

Access Road
(Approximate location
of road is shown,
final location to be
determined in the field)

Residential

RIVER ROAD

CDA #1
(50 ppm)

CDA #5
(50 ppm)

No samples
due to Rip Rap

Beachcombing

Beachcombing

CDA #4
(50 ppm)

South Berm

WOOD STREET

814750 815000 815250 815500 815750

2709500 2709250 2709000 2708750 2708500 2708250

LEGEND

Compliance Demonstration Areas
1
2
3
4
5
6

EPA Boundary Line
Confirmatory Sampling Grid

● Illustrative Confirmatory Sampling Locations
■ Illustrative Progress Sampling Locations

Topographic and Bathymetric Contours 1' Interval

Water Lines NGVD 29
MHHW (+2.72')
MHW (+2.45')
MLW (-1.32')
MLLW (-1.44')

N

0 50 100 150 200 Feet

Note:
1. The stations shown on this map are theoretical confirmatory sampling locations. Actual locations may be adjusted in the field.
2. The station IDs have been abbreviated for ease of viewing. Actual IDs include respective CDA number.

TETRA TECH FW, INC.

NEW BEDFORD HARBOR SUPERFUND SITE
BRISTOL COUNTY, MASSACHUSETTS

Figure E.2
Compliance Demonstration Areas for Confirmatory Sampling
North of Wood Street

SHEET 1 of 1
January 24, 2004

MA STATE PLANE
NAD 83 FEET
NGVD 29
1 FOOT CONTOUR INTERVAL
5 FOOT INDEX CONTOUR INTERVAL

P:\Terc-5197\NBH\GIS\WORKDIR\04-ws210690-001b.apr

Appendix E.3

Z-star Depths

814800 815000 815200 815400 815600 815800

2709400 2709200 2709000 2708800 2708600 2708400 2708200

HAMLIN STREET

HARWICH STREET

TRURO STREET

RIVER ROAD

RIVER STREET

GUILLOTTE STREET

JEAN STREET

SLOCUM STREET

WOOD STREET

LEGEND

- Trees
- Tree Line
- Rip Rap and Boulders
- Fence Line
- Contours NGVD29
- Stone Walls
- Vegetation Line
- Coir Fascine
- Building Base Only
- Buildings
- Early Action Excavation Limits
- Berm

Water Lines

- MHHW (+2.72')
- MHW (+2.45')
- MLW (-1.32')
- MLLW (-1.44')
- EPA Excavation Limits

Z* (feet)
North of Wood Street
Pre-Construction Design Cuts

- 0.25 - 0.5
- 0.5 - 1
- 1 - 1.5
- 1.5 - 2
- 2 - 2.5
- 2.5 - 3
- 3 - 3.5
- 3.5 - 4

N

0 50 100 150 200 Feet

TETRA TECH FW, INC

NEW BEDFORD HARBOR SUPERFUND SITE
BRISTOL COUNTY, MASSACHUSETTS

Figure E.3
Zstar Design Depths

SHEET 1 of 1
March 17, 2004

MA STATE PLANE
NAD 83 FEET
NGVD 29
1 FOOT CONTOUR INTERVAL
5 FOOT INDEX CONTOUR INTERVAL

P:\Terc-5197\NBH\GIS\WORKDIR\
03-ws220411-001.apr

Appendix F

GIS Excavation Drawings

Figure F.1 Final Excavation Depths

Figure F.2 Excavation Depth Variations from Design Depths

Figure F.1

Final Excavation Depths

814800 815000 815200 815400 815600 815800

2709400 2709200 2709000 2708800 2708600 2708400 2708200

HAMLIN STREET

HARWICH STREET

TRURO STREET

RIVER ROAD

WOOD STREET

GUILLOTTE STREET

JEAN STREET

RIVER STREET

SLOCUM STREET

LEGEND

- Trees
- Tree Line
- Rip Rap and Boulders
- Fence Line
- Contours NGVD29
- Stone Walls
- Vegetation Line
- Coir Fascine
- Building Base Only
- Buildings
- Early Action Excavation Limits
- Berm

Water Lines
- MHHW (+2.72')
- MHW (+2.45')
- MLW (-1.32')
- MLLW (-1.44')
- EPA Excavation Limits

Z* (feet)
North of Wood Street
Pre-Construction Design Cuts
- 0.25 - 0.5
- 0.5 - 1
- 1 - 1.5
- 1.5 - 2
- 2 - 2.5
- 2.5 - 3
- 3 - 3.5
- 3.5 - 4

N

0 50 100 150 200 Feet

TETRA TECH FW, INC

NEW BEDFORD HARBOR SUPERFUND SITE
BRISTOL COUNTY, MASSACHUSETTS

Figure F.1
Final Excavation Depths

SHEET 1 of 1
April 8, 2003

MA STATE PLANE
NAD 83 FEET
NGVD 29
1 FOOT CONTOUR INTERVAL
5 FOOT INDEX CONTOUR INTERVAL

P:\Terc-5197\NBH\GIS\WORKDIR\
03-ws220411-001.apr

Figure F.2

Excavation Depth Variations from Design Depths

814800 815000 815200 815400 815600 815800

2709400 2709200 2709000 2708800 2708600 2708400 2708200

HAMLIN STREET

HARWICH STREET

TRURO STREET

RIVER ROAD

GUILLOTTE STREET

JEAN STREET

RIVER STREET

SLOCUM STREET

WOOD STREET

LEGEND

- Trees
- Tree Line
- Rip Rap and Boulders
- Fence Line
- Contours NGVD29
- Stone Walls
- Vegetation Line
- Coir Fascine
- Building Base Only
- Buildings
- Early Action Excavation Limits
- Berm

Water Lines

- MHHW (+2.72')
- MHW (+2.45')
- MLW (-1.32')
- MLLW (-1.44')
- EPA Excavation Limits

Z* (feet)
North of Wood Street
Pre-Construction Design Cuts

- 0.25 - 0.5
- 0.5 - 1
- 1 - 1.5
- 1.5 - 2
- 2 - 2.5
- 2.5 - 3
- 3 - 3.5
- 3.5 - 4

N

0 50 100 150 200 Feet

NOTES:
1. Values were derived as follows: Maxi GPS Elevation - Theoretical Elevation After Cut.
2. Positive values indicate undercut (Less than the Z* (feet) - black text)
3. Negative values indicate overcut (More than the Z* (feet) - red text)

TETRA TECH FW, INC

NEW BEDFORD HARBOR SUPERFUND SITE
BRISTOL COUNTY, MASSACHUSETTS

Figure F.2
Excavation Depth Variations from Design Depths

SHEET 1 of 1
April 8, 2003

MA STATE PLANE
NAD 83 FEET
NGVD 29
1 FOOT CONTOUR INTERVAL
5 FOOT INDEX CONTOUR INTERVAL

P:\Terc-5197\NBH\GIS\WORKDIR\03-ws220411-001.apr

Appendix G

Restoration Drawings

Appendix G.1 Landscape Restoration Design

Appendix G.2 Restoration Planting Design

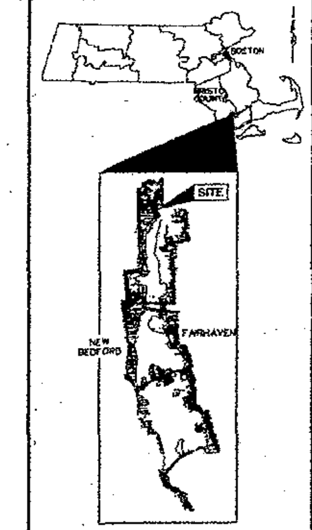
Appendix G.1

Landscape Restoration Design

US Army Corps
of Engineers
New England District

PREPARED BY
THE BIOENGINEERING GROUP, INC.
18 COMMERCIAL STREET
SALEM, MASSACHUSETTS 01970
Erosion Control · Water Quality · Habitat Restoration
TEL: (978) 740-0096 FAX: (978) 740-0097

PREPARED FOR
FOSTER WHEELER
FOSTER WHEELER ENVIRONMENTAL CORPORATION
133 FEDERAL STREET
BOSTON, MASSACHUSETTS 02110
Engineering · Remediation · Planning · Consulting
TEL: (617) 457-8200 FAX: (617) 457-8498/8499



SITE VICINITY
NOT TO SCALE

LANDSCAPE RESTORATION DESIGN NORTH OF WOOD STREET

NEW BEDFORD HARBOR SUPERFUND SITE

ISSUED FOR CONSTRUCTION SEPTEMBER 2002

NEW BEDFORD, MASSACHUSETTS

PROJ. NO. 5787.WS22.0411		INDEX TO DRAWINGS	
SHEET NO.		DRAWING NO.	TITLE
1	G-001	WS2204-GBIO-0010xx.DGN	COVER SHEET AND INDEX TO DRAWINGS
2	L-101	WS2204-L-1010xx.DGN	WOOD STREET RESTORATION GRADING PLAN
3	L-102	WS2204-L-1020xx.DGN	WOOD STREET RESTORATION GRADING PLAN
4	L-103	WS2204-L-1030xx.DGN	WOOD STREET RESTORATION GRADING PLAN
5	L-104	WS2204-L-1040xx.DGN	WOOD STREET RESTORATION GRADING PLAN
6	L-301	WS2204-L-3010xx.DGN	WOOD STREET RESTORATION CROSS SECTION - E 815,250
7	L-302	WS2204-L-3020xx.DGN	WOOD STREET RESTORATION CROSS SECTIONS - N 2,708,400 TO N 2,708,500
8	L-303	WS2204-L-3030xx.DGN	WOOD STREET RESTORATION CROSS SECTIONS - N 2,708,600 TO N 2,708,800
9	L-304	WS2204-L-3040xx.DGN	WOOD STREET RESTORATION CROSS SECTION - N 2,708,850
10	L-305	WS2204-L-3050xx.DGN	WOOD STREET RESTORATION CROSS SECTION - N 2,708,300
11	L-501	WS2204-L-5010xx.DGN	WOOD STREET RESTORATION DETAILS
12	L-502	WS2204-L-5020xx.DGN	WOOD STREET RESTORATION DETAILS

VALUE ENGINEERING PAYS DIVIDENDS

SAFETY PAYS

CONTRACT • DACW33-94-D-0002

Signatures not required per USACE

APPROVED FUNCTIONAL ADEQUACY — ENGINEER MANAGER — DATE:
RECOMMENDED BY: — CHIEF, ENGRG MGMT BRANCH — DATE:
REVIEWED BY: — CHIEF, DESIGN BRANCH — DATE:
APPROVED BY: — CHIEF, ENGRG/PLANNING DIV — DATE:
REVIEWED BY: — CH. GEOTECH & WATER MGT BR — DATE:
PREPARED BY: — PRINCIPAL, A/E FIRM — DATE:

This project was designed for the New England Division of the U.S. Army Corps of Engineers. The initials or signatures and registration designations of individuals appear on these project documents, within the scope of their employment as required by ER 1110-1-8152.

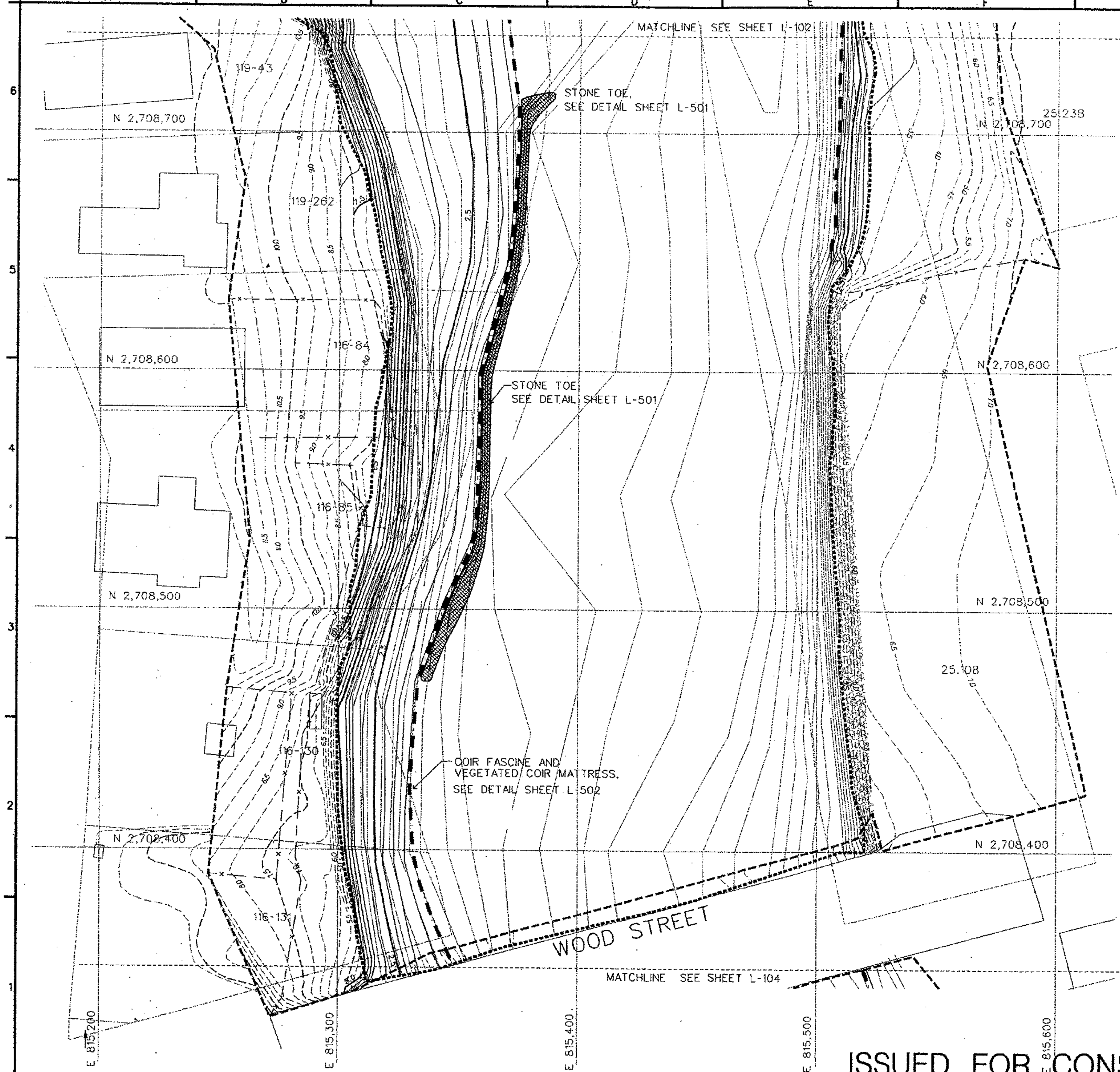
NEW BEDFORD HARBOR SUPERFUND SITE
NEW BEDFORD, MASSACHUSETTS
RESTORATION DESIGN, NORTH OF WOOD STREET

COVER SHEET AND INDEX TO DRAWINGS

Reference number: G-001

Sheet 1 of 12

CAD FILE: WS2204-GBIO-0010xx.DGN



EXISTING MAJOR CONTOUR

EXISTING MINOR CONTOUR

POST-EXCAVATION CONTOUR

PROPOSED MAJOR CONTOUR

PROPOSED MINOR CONTOUR

PROPOSED COIR FASCINE AND VEGETATED COIR MATTRESS

EPA LIMIT OF EXCAVATION

EXISTING PROPERTY LINES

EXISTING FENCE LINE

PROPOSED RIP-RAP

EXISTING RIP-RAP

PROPOSED STONE TOE

NOTES:

ALL TOPSOIL AREAS SHALL BE COVERED WITH EROSION CONTROL FABRIC (ECF) AFTER TOPSOIL HAS BEEN PLACED, GRADED AND COMPACTED.

UPLAND SEED SHALL BE APPLIED PRIOR TO PLACEMENT OF ECF.

VEGETATED COIR MATTRESS TO BE INSTALLED AT A LATER DATE THAN THE COIR FASCINE. SEE SPECIFICATIONS

SCALE 1" = 20'

ISSUED FOR CONSTRUCTION

US Army Corps of Engineers
New England District

Symbol	Description	Date	Appr.
0	ISSUED FOR CONSTRUCTION	09/27/02	
B	ISSUED FOR USACE REVIEW	08/02/02	
A	PRELIMINARY DRAFT REVIEW-IN PROGRESS	07/23/02	

Designed by: The Bioengineering Group
Drawn by: ATW
Reviewed by: S/D
Submitted by: ATW
Date: 09/27/02
Rev. 0
Design file no. WS2204L-101XX.dgn
Drawing code:
File name
Plot date:
Plot scale:

THE BIOENGINEERING GROUP
18 COMMERCIAL STREET
SALEM, MASSACHUSETTS

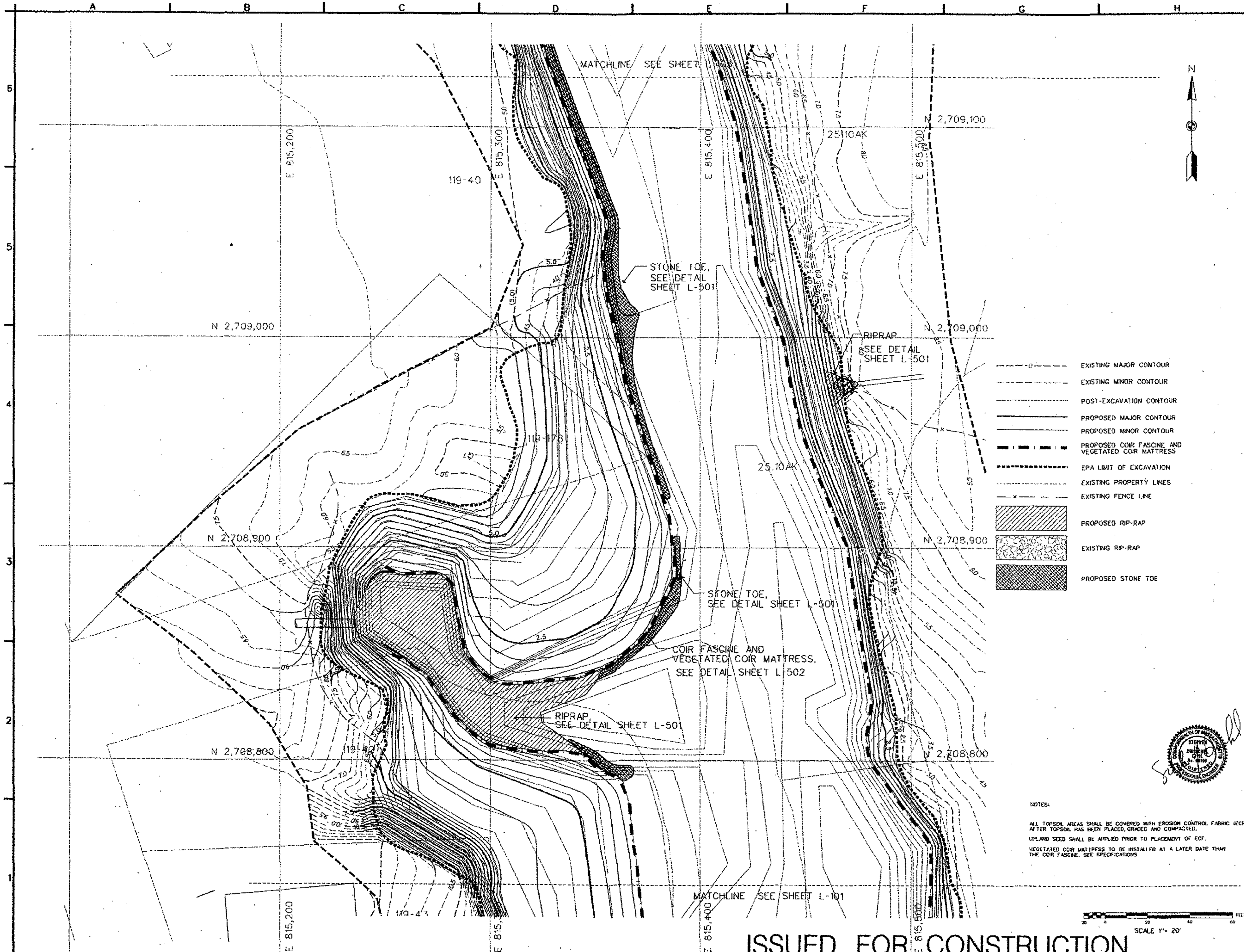
FOSTER WHEELER ENVIRONMENTAL CORP.
133 FEDERAL STREET
BOSTON, MASSACHUSETTS

NEW BEDFORD HARBOR SUPERFUND SITE
NEW BEDFORD, MASSACHUSETTS
LANDSCAPE RESTORATION DESIGN, NORTH OF WOOD STREET

WOOD STREET RESTORATION
GRADING PLAN

Reference number: L-101

Sheet 2 of 12



NOTES:

ALL TOPSOIL AREAS SHALL BE COVERED WITH EROSION CONTROL FABRIC (ECF) AFTER TOPSOIL HAS BEEN PLACED, GRADED AND COMPACTED.

UPLAND SEED SHALL BE APPLIED PRIOR TO PLACEMENT OF ECF.

VEGETATED COIR MATTRESS TO BE INSTALLED AT A LATER DATE THAN THE COIR FASCINE. SEE SPECIFICATIONS

ISSUED FOR CONSTRUCTION

US Army Corps of Engineers
New England District

Symbol	Description	Date	Appr.
0	ISSUED FOR CONSTRUCTION	09/27/02	
B	ISSUED FOR USACE REVIEW	08/02/02	
A	PRELIMINARY DRAFT REVIEW-IN PROGRESS	07/23/02	

Designed by: The Bioengineering Group
Drawn by: ATW
Reviewed by: SAD
Submitted by: ATW
Date: 09/27/02
Rev.: 0
Design file no. WS2704-L-102dgn
Drawing code:
File name:
Plot date:
Plot scale:

THE BIOENGINEERING GROUP
18 COMMERCIAL STREET
SALEM, MASSACHUSETTS

FOSTER WHEELER ENVIRONMENTAL CORP.
133 FEDERAL STREET
BOSTON, MASSACHUSETTS

NEW BEDFORD HARBOR SUPERFUND SITE
NEW BEDFORD, MASSACHUSETTS
LANDSCAPE RESTORATION DESIGN, NORTH OF WOOD STREET

WOOD STREET RESTORATION
GRADING PLAN

Reference number:
L-102
Sheet 3 of 12

EXISTING MAJOR CONTOUR
EXISTING MINOR CONTOUR
POST-EXCAVATION CONTOUR
PROPOSED MAJOR CONTOUR
PROPOSED MINOR CONTOUR
PROPOSED COIR FASCINE AND VEGETATED COIR MATTRESS
EPA LIMIT OF EXCAVATION
EXISTING PROPERTY LINES
EXISTING FENCE LINE
PROPOSED RIP-RAP
EXISTING RIP-RAP
PROPOSED STONE TOE

NOTES:

ALL TOPSOIL AREAS SHALL BE COVERED WITH EROSION CONTROL FABRIC (ECF) AFTER TOPSOIL HAS BEEN PLACED, GRADED AND COMPACTED.

UPLAND SEED SHALL BE APPLIED PRIOR TO PLACEMENT OF ECF.

VEGETATED COIR MATTRESS TO BE INSTALLED AT A LATER DATE THAN THE COIR FASCINE. SEE SPECIFICATIONS

SCALE 1"= 20'

ISSUED FOR CONSTRUCTION

US Army Corps of Engineers
New England District

Symbol	Description	Date	Appr.
O	ISSUED FOR CONSTRUCTION	09/27/02	
B	ISSUED FOR USACE REVIEW	08/02/02	
A	PRELIMINARY DRAFT REVIEW IN PROGRESS	07/23/02	

Designed by: The Bioengineering Group
Drawn by: ATW
Reviewed by: SYD
Submitted by: ATW
Date: 09/27/02
Rev. 0
Design file no. WS2204-1030XX.dgn
Drawing code:
File name:
Plot date:
Plot scale:

THE BIOENGINEERING GROUP
18 COMMERCIAL STREET
SALEM, MASSACHUSETTS

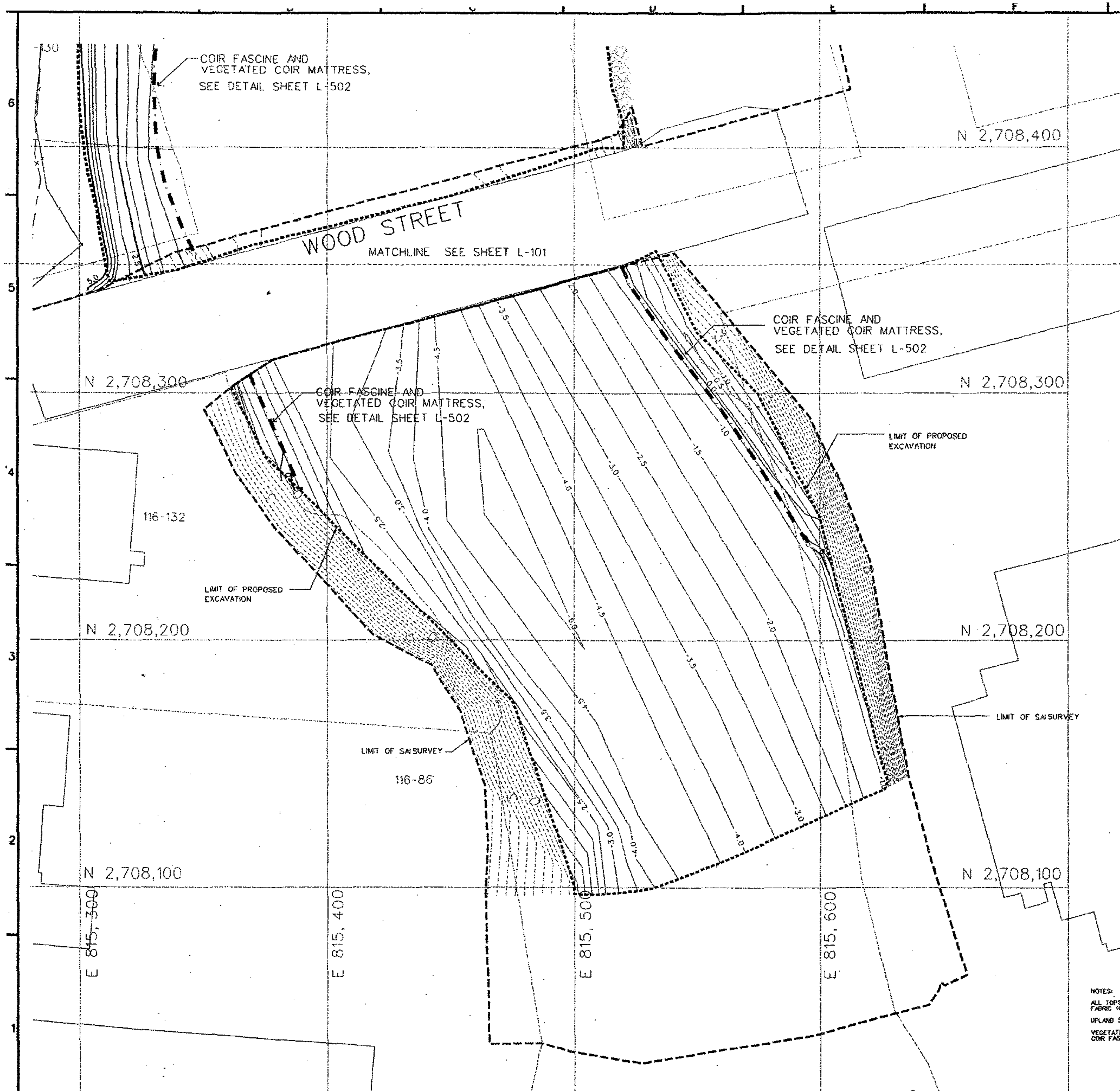
FOSTER WHEELER ENVIRONMENTAL CORP.
133 FEDERAL STREET
BOSTON, MASSACHUSETTS

NEW BEDFORD HARBOR SUPERFUND SITE
NEW BEDFORD, MASSACHUSETTS
LANDSCAPE RESTORATION DESIGN, NORTH OF WOOD STREET

WOOD STREET RESTORATION
GRADING PLAN

Reference number:
L-103

Sheet 4 of 12



	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	POST-EXCAVATION CONTOUR
	PROPOSED MAJOR CONTOUR
	PROPOSED MINOR CONTOUR
	PROPOSED COIR FASCINE AND VEGETATED COIR MATTRESS
	EPA LIMIT OF EXCAVATION
	EXISTING PROPERTY LINES
	EXISTING FENCE LINE
	PROPOSED RIP-RAP
	EXISTING RIP-RAP
	PROPOSED STONE TOE

25.185

NOTES:

ALL TOPSOIL AREAS SHALL BE COVERED WITH EROSION CONTROL FABRIC (ECF) AFTER TOPSOIL HAS BEEN PLACED, GRADED AND COMPACTED.

UPLAND SEED SHALL BE APPLIED PRIOR TO PLACEMENT OF ECF.

VEGETATED COIR MATTRESS TO BE INSTALLED AT A LATER DATE THAN THE COIR FASCINE. SEE SPECIFICATIONS.

SCALE 1"= 20'

ISSUED FOR CONSTRUCTION

US Army Corps of Engineers
New England District

Symbol	Description	Date	Appr.
0	ISSUED FOR CONSTRUCTION	09/27/02	
B	ISSUED FOR USACE REVIEW	08/02/02	
A	PRELIMINARY DRAFT REVIEW-IN PROGRESS	07/23/02	

Designed by: The Bioengineering Group
Drawn by: ATW
Reviewed by: S/D
Submitted by: ATW
Date: 09/27/02
Rev. 0
Design file no. W52104-L-104OX.dgn
Drawing code:
File name:
Plot date:
Plot scale:

THE BIOENGINEERING GROUP
18 COMMERCIAL STREET
SALEM, MASSACHUSETTS

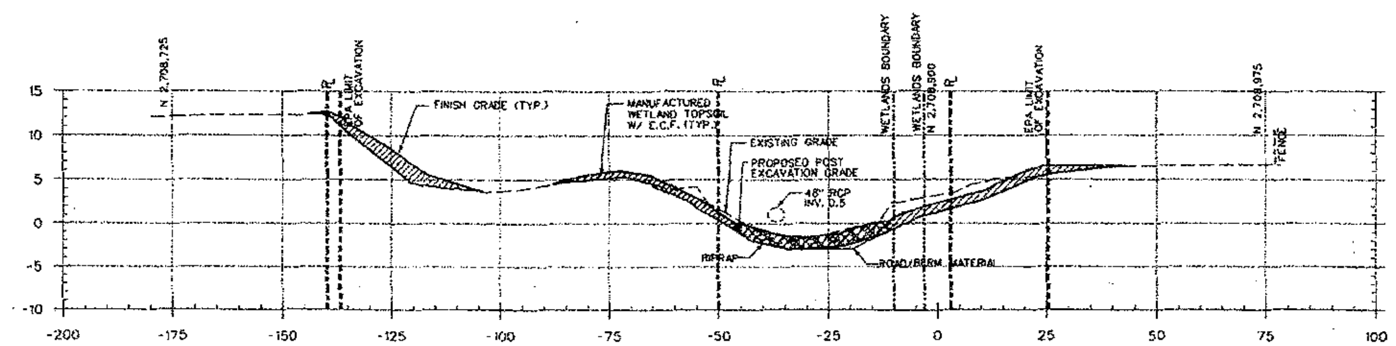
FOSTER WHEELER
ENVIRONMENTAL CORP.
133 FEDERAL STREET
BOSTON, MASSACHUSETTS

NEW BEDFORD HARBOR SUPERFUND SITE
NEW BEDFORD, MASSACHUSETTS
LANDSCAPE RESTORATION DESIGN, NORTH OF WOOD STREET

WOOD STREET RESTORATION
GRADING PLAN

Reference number:
L-104

Sheet 5 of 12



E 815,250

NOTES:

ALL TOPSOIL AREAS SHALL BE COVERED WITH EROSION CONTROL FABRIC (ECF) AFTER TOPSOIL HAS BEEN PLACED, GRADED AND COMPACTED.

UPLAND SEED SHALL BE APPLIED PRIOR TO PLACEMENT OF ECF.

VEGETATED COIR MATTRESS TO BE INSTALLED AT A LATER DATE THAN THE COIR FASCINE. SEE SPECIFICATIONS

SCALE 1"= 20'

ISSUED FOR CONSTRUCTION

US Army Corps of Engineers
New England District

Symbol	Description	Date	Appr.
0	ISSUED FOR CONSTRUCTION	09/27/02	
B	ISSUED FOR USACE REVIEW	08/02/02	
A	PRELIMINARY DRAFT REVIEW IN PROGRESS	07/23/02	

Designed by: The Bioengineering Group | Date: 09/27/02 | Rev: 0
Drawn by: ATW | Design file no. WS2234-L-3010xx.dgn
Reviewed by: SJD | Drawing code:
Submitted by: ATW | File name: Plot date: Plot scale:

THE BIOENGINEERING GROUP
18 COMMERCIAL STREET
SALEM, MASSACHUSETTS

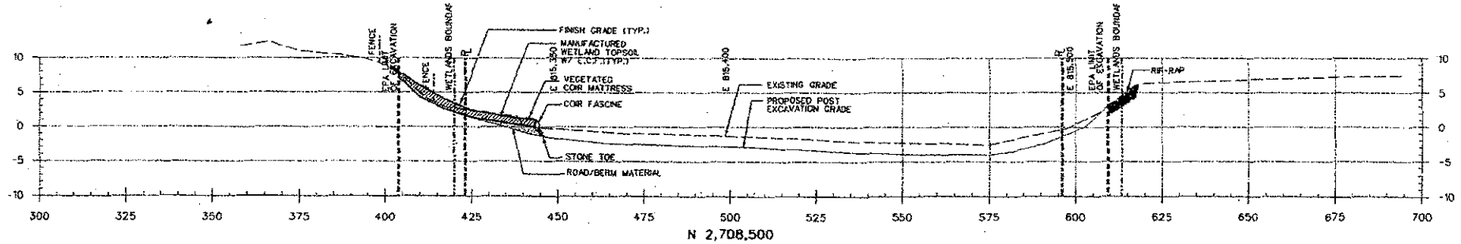
FOSTER WHEELER
ENVIRONMENTAL CORP.
133 FEDERAL STREET
BOSTON, MASSACHUSETTS

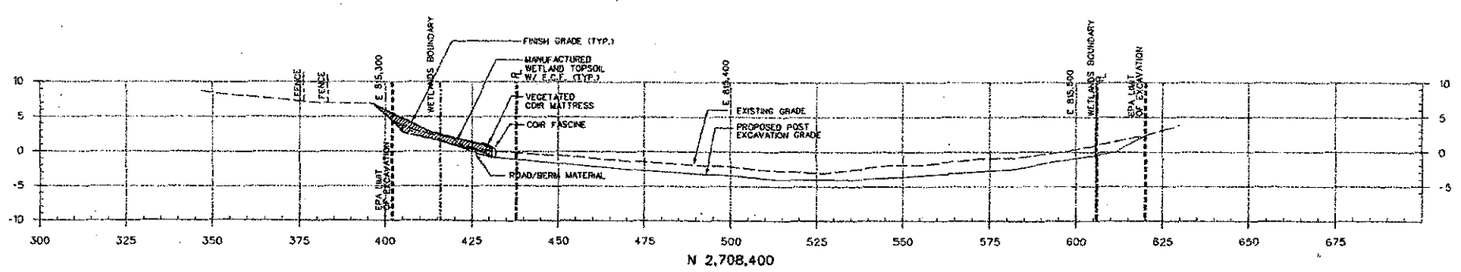
NEW BEDFORD HARBOR SUPERFUND SITE
NEW BEDFORD, MASSACHUSETTS
LANDSCAPE RESTORATION DESIGN, NORTH OF WOOD STREET

WOOD STREET RESTORATION
CROSS SECTIONS
E 815,250

Reference number:
L-301

Sheet 6 of 12





NOTES:

ALL TOPSOIL AREAS SHALL BE COVERED WITH EROSION CONTROL FABRIC (ECF) AFTER TOPSOIL HAS BEEN PLACED, GRADED AND COMPACTED.

UPLAND SEED SHALL BE APPLIED PRIOR TO PLACEMENT OF ECF.

VEGETATED COIR MATTRESS TO BE INSTALLED AT A LATER DATE THAN THE COIR FASCINE. SEE SPECIFICATIONS

SCALE 1"= 20'

ISSUED FOR CONSTRUCTION

US Army Corps of Engineers
New England District

Symbol	Description	Date	ADD.
0	ISSUED FOR CONSTRUCTION	09/27/02	
B	ISSUED FOR 100% REVIEW	08/02/02	
A	PRELIMINARY DRAFT REVIEW PROGRESS	07/23/02	

Designed by: The Biosngineering Group
Drawn by: ASW
Reviewed by: SJD
Submitted by: ASW
Date: 09/27/02
Design file no.: WS2704-L-302BXX.dgn
Drawing code:
File name:
Plot scale:
Plot date:

THE BIOENGINEERING GROUP
10 COMMERCIAL STREET
SALEM, MASSACHUSETTS

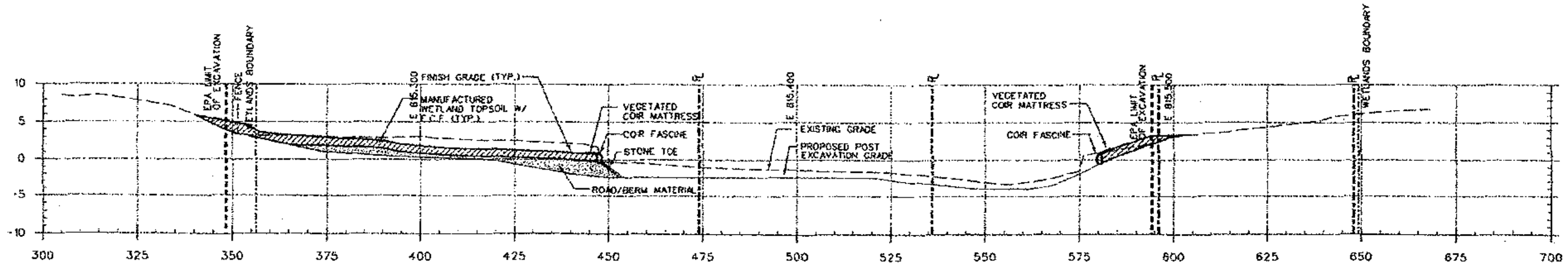
FOSTER WHEELER ENVIRONMENTAL CORP.
133 FEDERAL STREET
BOSTON, MASSACHUSETTS

NEW BEDFORD HARBOR SUPERFUND SITE
NEW BEDFORD, MASSACHUSETTS
LANDSCAPE RESTORATION DESIGN, NORTH OF WOOD STREET

WOOD STREET RESTORATION
CROSS SECTIONS
N 2,708,400 - N 2,708,500

Reference number:
L-302

Sheet 7 of 12



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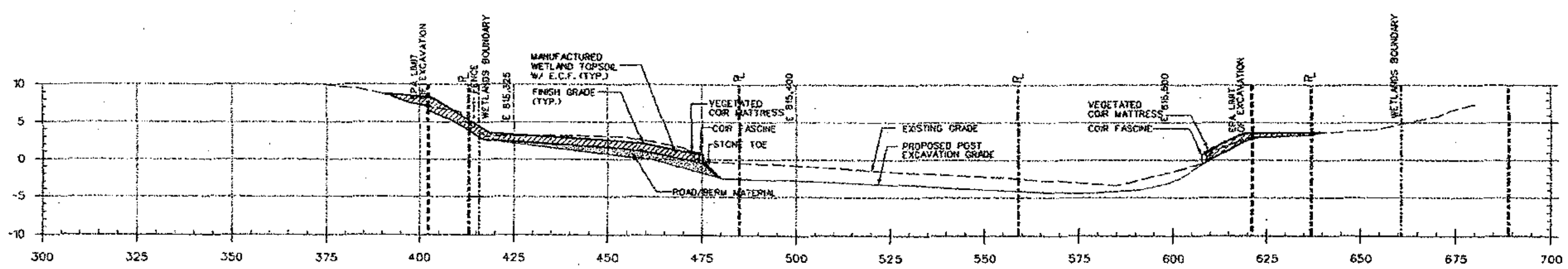

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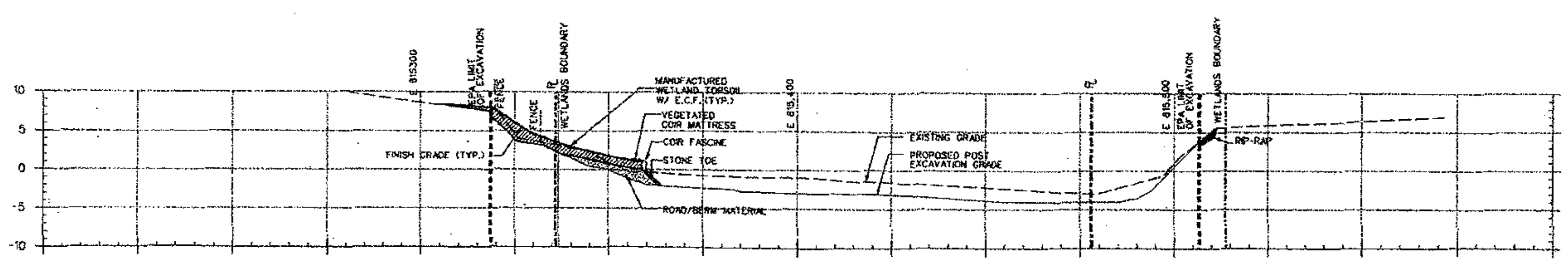


N 2,708,600

NOTES:

ALL TOPSOIL AREAS SHALL BE COVERED WITH EROSION CONTROL FABRIC (ECF) AFTER TOPSOIL HAS BEEN PLACED, GRADED AND COMPACTED.

UPLAND SEED SHALL BE APPLIED PRIOR TO PLACEMENT OF ECF.

VEGETATED COIR MATTRESS TO BE INSTALLED AT A LATER DATE THAN THE COIR FASCINE. SEE SPECIFICATIONS

20 0 20 40 60 FEET

SCALE 1"= 20'

ISSUED FOR CONSTRUCTION

US Army Corps of Engineers
New England District

Symbol	Description	Date	Appr.
0	ISSUED FOR CONSTRUCTION	09/27/02	
B	ISSUED FOR USACE REVIEW	08/02/02	
A	PRELIMINARY DRAFT REVIEW-IN PROGRESS	07/23/02	

Designed by: The Bioengineering Group	Date: 09/27/02	Rev. 0	
Drawn by: ATW	Design file no. WS2204-L-303XX.dgn		
Reviewed by: S/A	Drawing code:		
Submitted by: ATW	File name: Plot date: Plot scale:		

THE BIOENGINEERING GROUP
18 COMMERCIAL STREET
SALEM, MASSACHUSETTS

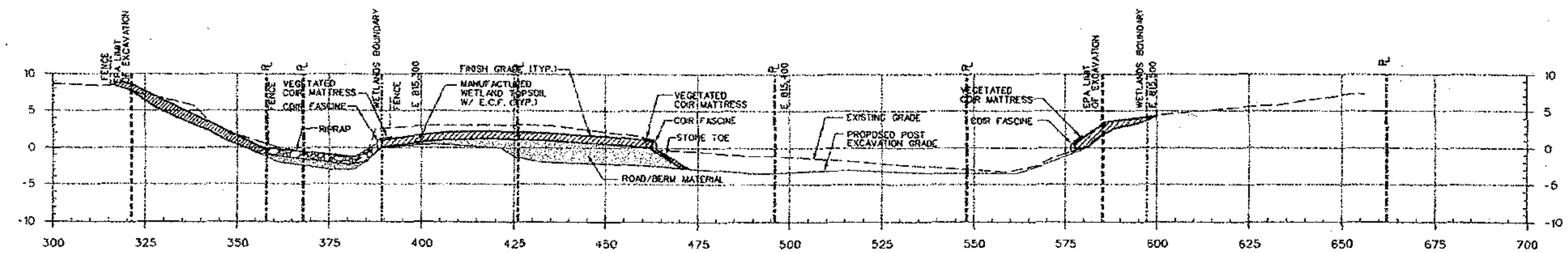
FOSTER WHEELER ENVIRONMENTAL CORP.
133 FEDERAL STREET
BOSTON, MASSACHUSETTS

NEW BEDFORD HARBOR SUPERFUND SITE
NEW BEDFORD, MASSACHUSETTS
LANDSCAPE RESTORATION DESIGN, NORTH OF WOOD STREET

WOOD STREET RESTORATION
CROSS SECTIONS
N 2,708,600 - N 2,708,800

Reference number:
L-303

Sheet 8 of 12



N 2,708,850

NOTES:

ALL TOPSOIL AREAS SHALL BE COVERED WITH EROSION CONTROL FABRIC (ECF) AFTER TOPSOIL HAS BEEN PLACED, GRADED AND COMPACTED.

UPLAND SEED SHALL BE APPLIED PRIOR TO PLACEMENT OF ECF.

VEGETATED COIR MATTRESS TO BE INSTALLED AT A LATER DATE THAN THE COIR FASCINE. SEE SPECIFICATIONS

SCALE 1"= 20'

ISSUED FOR CONSTRUCTION

US Army Corps of Engineers
New England District

Symbol	Description	Date	Appr.
0	ISSUED FOR CONSTRUCTION	09/27/02	
B	ISSUED FOR USACE REVIEW	08/02/02	
A	PRELIMINARY DRAFT REVIEW-IN PROGRESS	07/23/02	

Designed by: The Bioengineering Group
Drawn by: ATW
Reviewed by: SAD
Submitted by: ATW
Date: 09/27/02
Rev. 0
Design file no. WS2204-L-304XX.dgn
Drawing code:
File name:
Plot date:
Plot scale:

THE BIOENGINEERING GROUP
18 COMMERCIAL STREET
SALEM, MASSACHUSETTS

FOSTER WHEELER ENVIRONMENTAL CORP.
133 FEDERAL STREET
BOSTON, MASSACHUSETTS

NEW BEDFORD HARBOR SUPERFUND SITE
NEW BEDFORD, MASSACHUSETTS
LANDSCAPE RESTORATION DESIGN, NORTH OF WOOD STREET

WOOD STREET RESTORATION
CROSS SECTIONS
N 2,708,850

Reference number:
L-304

Sheet 9 of 12

US Army Corps of Engineers
New England District

Symbol	Description	Date	Appr.
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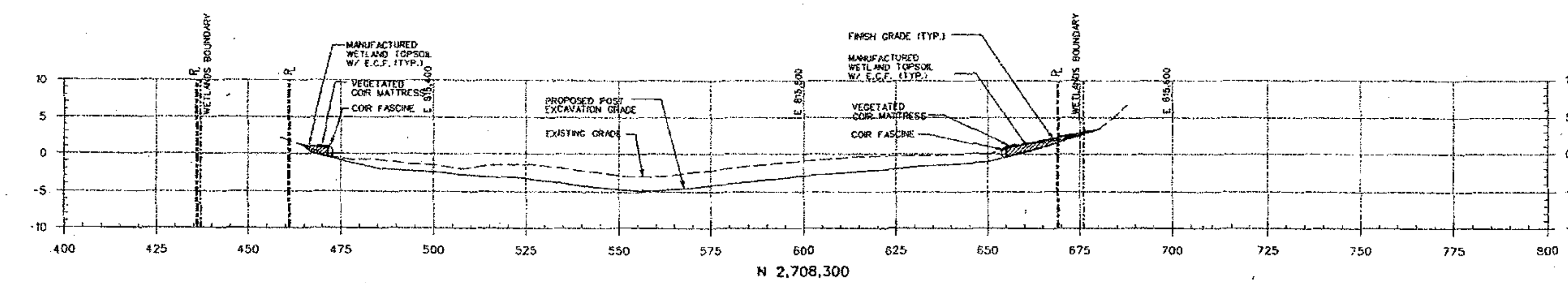
B	ISSUED FOR USACE REVIEW	08/02/02	
A	PRELIMINARY DRAFT REVIEW-IN PROGRESS	07/23/02	



NOTES:

ALL TOPSOIL AREAS SHALL BE COVERED WITH EROSION CONTROL FABRIC (ECF) AFTER TOPSOIL HAS BEEN PLACED, GRADED AND COMPACTED.

UPLAND SEED SHALL BE APPLIED PRIOR TO PLACEMENT OF ECF.

VEGETATED COIR MATTRESS TO BE INSTALLED AT A LATER DATE THAN THE COIR FASCINE. SEE SPECIFICATIONS

SCALE 1"= 20'

ISSUED FOR CONSTRUCTION

Designed by: The Bioengineering Group
Date: 09/27/02
Rev. 0
Drawn by: AJW
Design file no. WS2204-L-305XX.dgn
Reviewed by: S1D
Drawing code:
Submitted by: AJW
File name:
Plot date:
Plot scale:

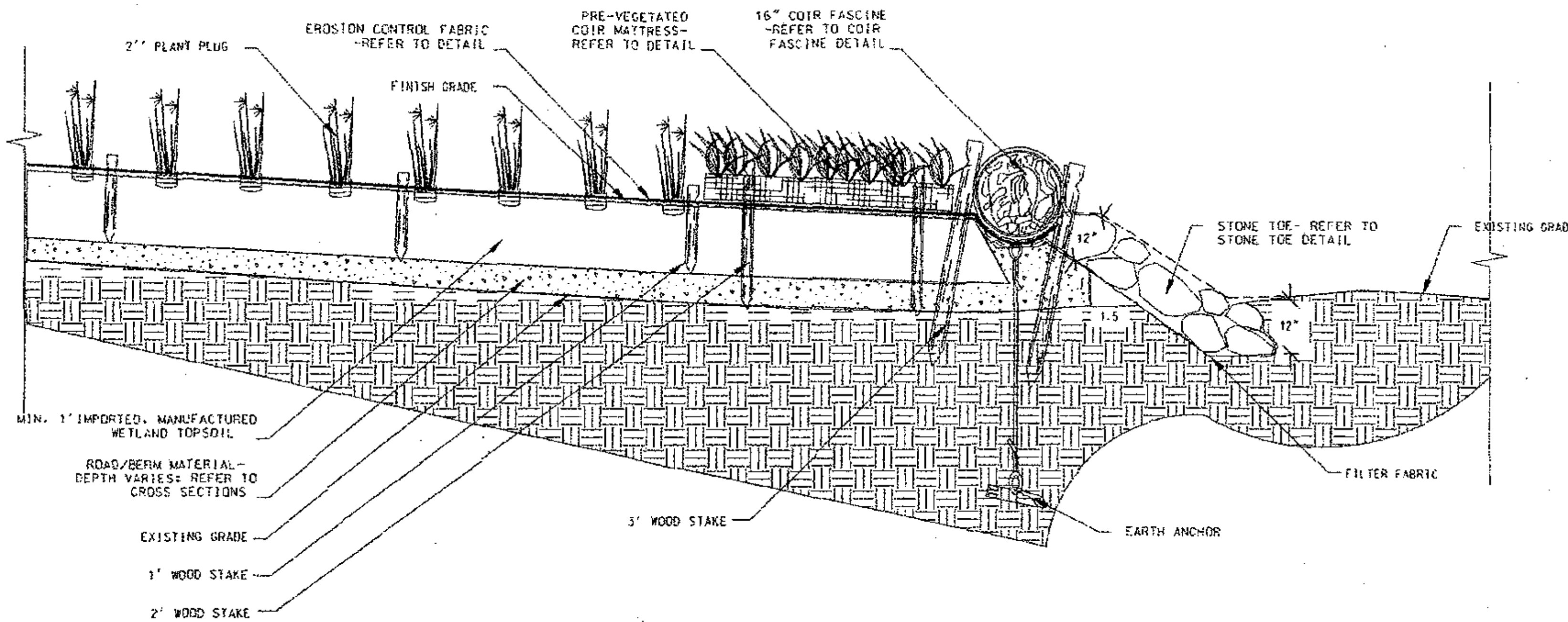
THE BIOENGINEERING GROUP
18 COMMERCIAL STREET
SALEM, MASSACHUSETTS

FOSTER WHEELER ENVIRONMENTAL CORP.
133 FEDERAL STREET
BOSTON, MASSACHUSETTS

NEW BEDFORD HARBOR SUPERFUND SITE
NEW BEDFORD, MASSACHUSETTS
LANDSCAPE RESTORATION DESIGN, NORTH OF WOOD STREET

WOOD STREET RESTORATION
CROSS SECTIONS
N 2,708,300

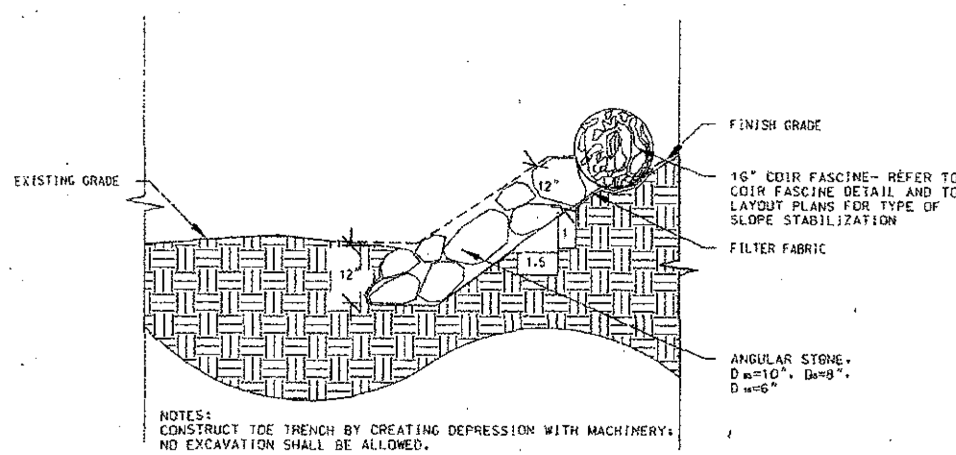
Reference number:
L-305
Sheet 10 of 12



NOTE:
1. REFER TO SPECIFICATIONS FOR SPECIES OF PLANT PLUGS, SEED MIX AND VEGETATED COIR MATTRESS (TO BE INSTALLED ACCORDING TO CONSTRUCTION SCHEDULE AT A LATER DATE).

L-01 TYPICAL CROSS SECTION

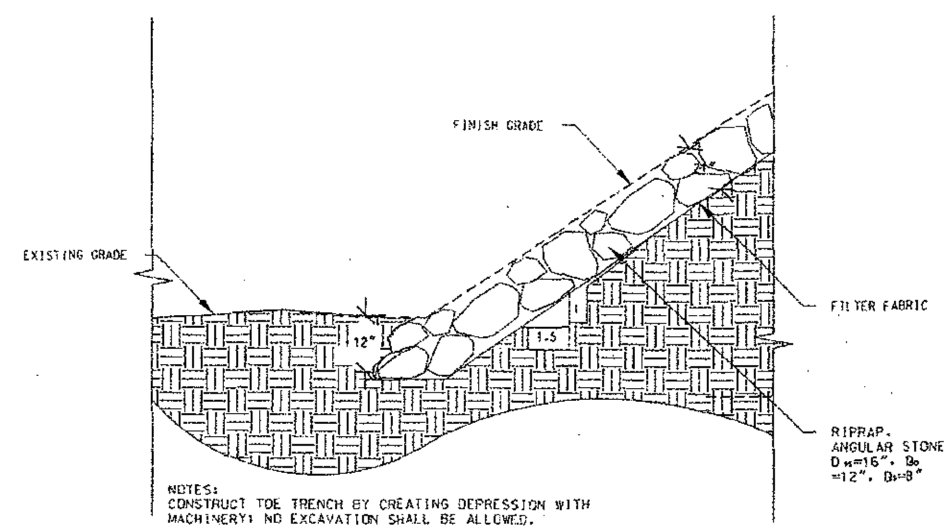
Not to Scale



NOTES:
CONSTRUCT TOE TRENCH BY CREATING DEPRESSION WITH MACHINERY; NO EXCAVATION SHALL BE ALLOWED.

L-02 STONE TOE

Not to Scale



NOTES:
CONSTRUCT TOE TRENCH BY CREATING DEPRESSION WITH MACHINERY; NO EXCAVATION SHALL BE ALLOWED.

L-03 RIPRAP WITH STONE TOE

Not to Scale

COMMONWEALTH OF MASSACHUSETTS STEPHEN ... CIVIL No. ... REGISTERED PROFESSIONAL ENGINEER

NOTES:

ALL TOPSOIL AREAS SHALL BE COVERED WITH EROSION CONTROL FABRIC (ECF) AFTER TOPSOIL HAS BEEN PLACED, GRADED AND COMPACTED.

VEGETATED COIR MATTRESS TO BE INSTALLED AT A LATER DATE THAN THE COIR FASCINE. SEE SPECIFICATIONS

ISSUED FOR CONSTRUCTION

US Army Corps of Engineers
New England District

Symbol	Description	Date	Appr.
0	ISSUED FOR CONSTRUCTION	09/27/02	
B	ISSUED FOR USACE REVIEW	08/02/02	
A	PRELIMINARY DRAFT REVIEW-IN PROGRESS	07/23/02	

Designed by: The Bioengineering Group
Drawn by: ATW
Reviewed by: S/O
Submitted by: ATW
Date: 09/27/02
Rev. 0
Design file no. WS2704-L-501XX.dgn
Drawing code:
File name:
Plot date:
Plot scale:

THE BIOENGINEERING GROUP
18 COMMERCIAL STREET
SALEM, MASSACHUSETTS

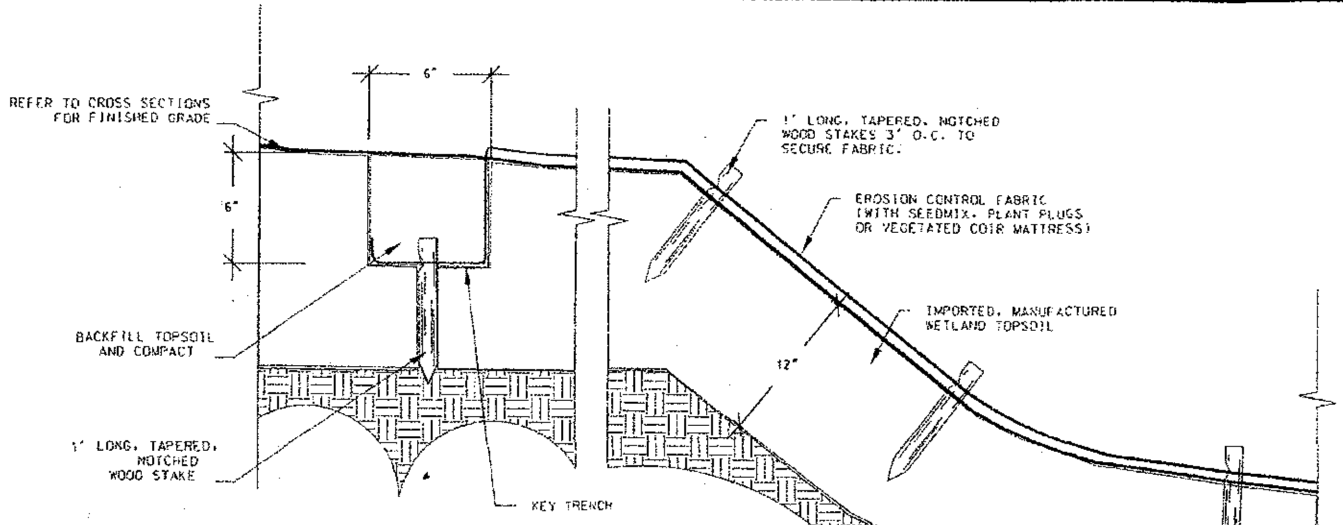
FOSTER WHEELER ENVIRONMENTAL CORP.
133 FEDERAL STREET
BOSTON, MASSACHUSETTS

NEW BEDFORD HARBOR SUPERFUND SITE
NEW BEDFORD, MASSACHUSETTS
LANDSCAPE RESTORATION DESIGN, NORTH OF WOOD STREET

WOOD STREET RESTORATION DETAILS

Reference number: L-501

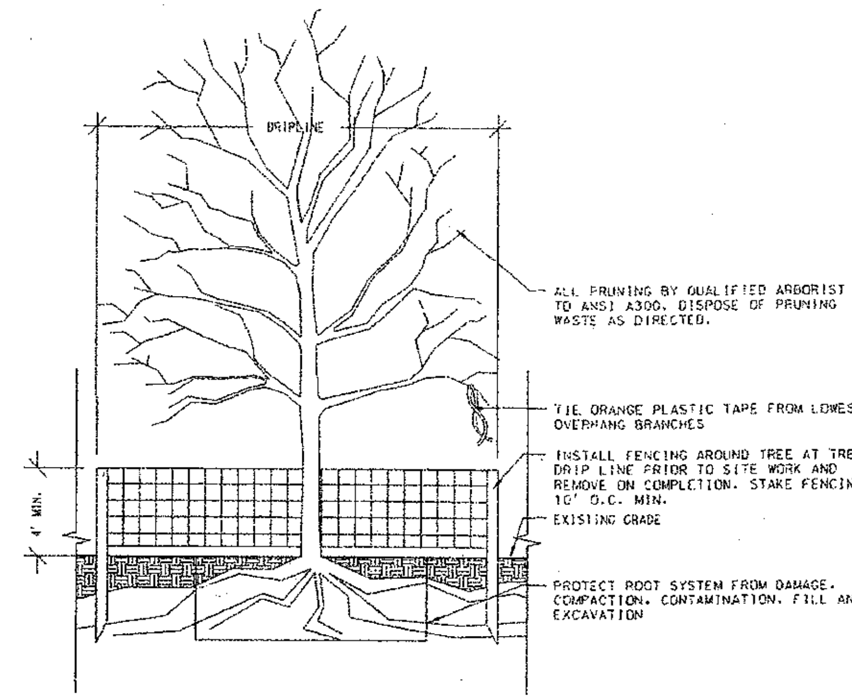
Sheet 11 of 12



NOTE:
1. ALL AREAS RECEIVING TOPSOIL TO RECEIVE EROSION CONTROL FABRIC.
2. REFER TO SPECIFICATIONS FOR SPECIES OF PLANT PLUGS, SEED MIX AND VEGETATED COIR MATTRESS (TO BE INSTALLED ACCORDING TO CONSTRUCTION SCHEDULE).
3. LAY OUT EROSION CONTROL FABRIC ROLLS PERPENDICULAR TO THE RIVER CHANNEL. ALL BLANKETS SHALL OVERLAP 6". FASTEN WITH 1' LONG WOOD STAKES THROUGH BOTH LAYERS OF FABRIC AT THE OVERLAPPED AREA 1' O.C.

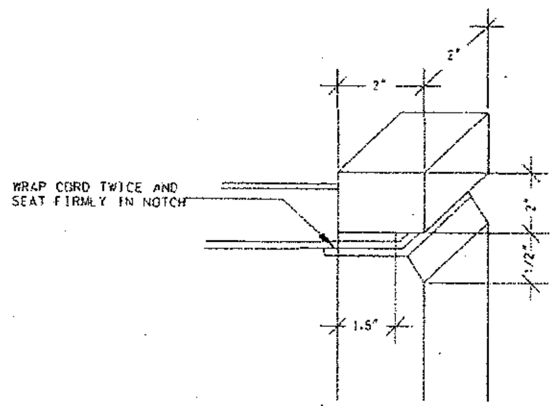
L-04 EROSION CONTROL FABRIC

Not to Scale



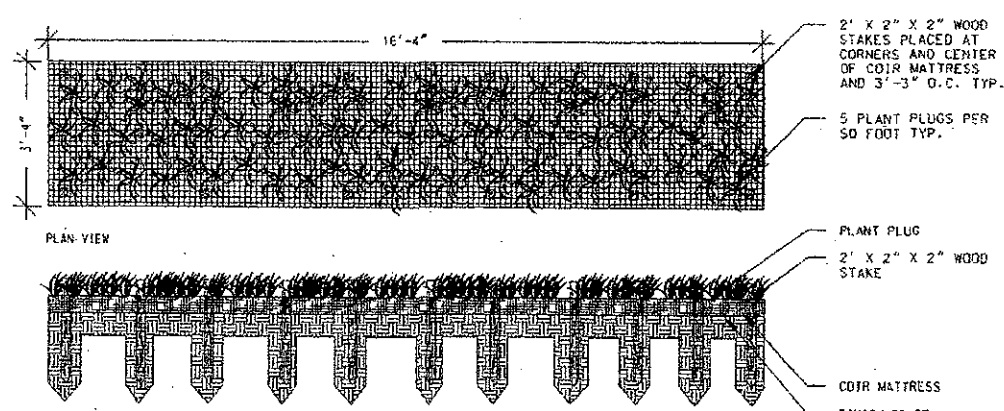
L-05 PROTECTION OF EXISTING TREES

NOT TO SCALE



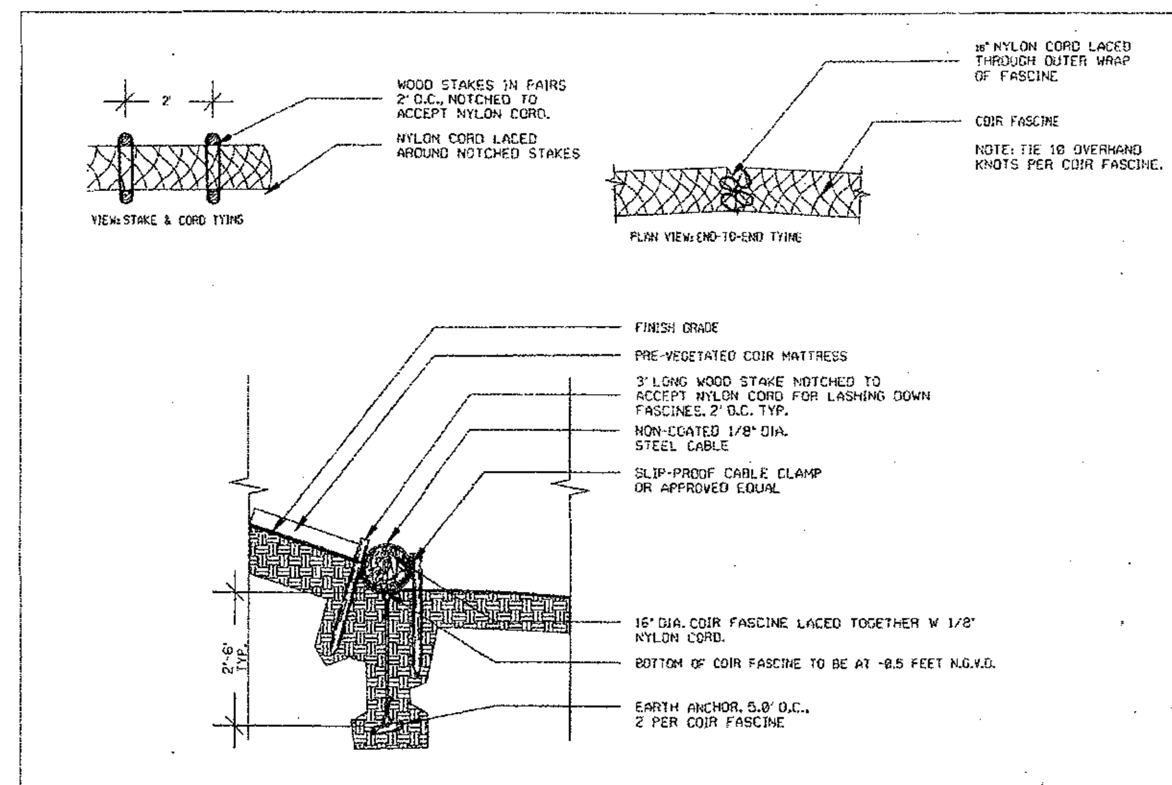
DETAIL NOTCHED WOOD STAKE

NOT TO SCALE



L-06 VEGETATED COIR MATTRESS

NOT TO SCALE



L-07 COIR FASCINE WITH EARTH ANCHOR AND WOOD STAKES

NOT TO SCALE

NOTES:

ALL TOPSOIL AREAS SHALL BE COVERED WITH EROSION CONTROL FABRIC (ECF) AFTER TOPSOIL HAS BEEN PLACED, GRADED AND COMPACTED.

VEGETATED COIR MATTRESS TO BE INSTALLED AT A LATER DATE THAN THE COIR FASCINE. SEE SPECIFICATIONS

ISSUED FOR CONSTRUCTION

US Army Corps of Engineers
New England District

Symbol	Description	Date	Appr.
0	ISSUED FOR CONSTRUCTION	09/27/02	
B	ISSUED FOR USACE REVIEW	08/02/02	
A	PRELIMINARY DRAFT REVIEW-IN PROGRESS	07/23/02	

Designed by: The BioEngineering Group
Date: 09/27/02
Rev. 0
Drawn by: AJW
Design file no. WS2204-L-5020XX.dgn
Reviewed by: S/D
Drawing code:
Submitted by: AJW
File name:
Plot date:
Plot scale:

THE BIOENGINEERING GROUP
18 COMMERCIAL STREET
SALEM, MASSACHUSETTS

FOSTER WHEELER ENVIRONMENTAL CORP.
133 FEDERAL STREET
BOSTON, MASSACHUSETTS

NEW BEDFORD HARBOR SUPERFUND SITE
NEW BEDFORD, MASSACHUSETTS
LANDSCAPE RESTORATION DESIGN, NORTH OF WOOD STREET

WOOD STREET RESTORATION DETAILS

Reference number:
L-502
Sheet 12 of 12

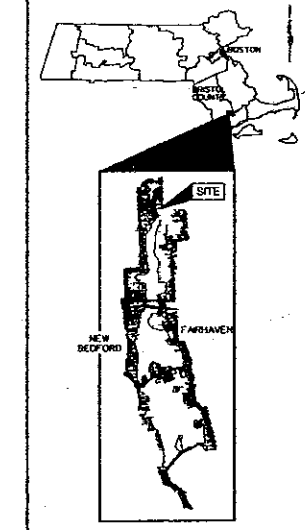
Appendix G.2

Restoration Planting Design

US Army Corps
of Engineers
New England District

PREPARED BY
THE BIOENGINEERING GROUP, INC.
18 COMMERCIAL STREET
SALEM, MASSACHUSETTS 01970
Erosion Control · Water Quality · Habitat Restoration
TEL: (978) 740-0096 FAX: (978) 740-0097

PREPARED FOR
FOSTER WHEELER
FOSTER WHEELER ENVIRONMENTAL CORPORATION
133 FEDERAL STREET
BOSTON, MASSACHUSETTS 02110
Engineering · Remediation · Planning · Consulting
TEL: (617) 457-8200 FAX: (617) 457-8498/8499



SITE VICINITY
NOT TO SCALE

RESTORATION PLANTING DESIGN
NORTH OF WOOD STREET

NEW BEDFORD HARBOR
SUPERFUND SITE

ISSUED FOR CONSTRUCTION
JULY 2003

PROJ. NO. 5197.WS22.0411		INDEX TO DRAWINGS	
SHEET NO.		DRAWING NO.	TITLE
1	G-001	WS2204-G-0010xx.DGN	COVER SHEET AND INDEX TO DRAWINGS
2	LP-101	WS2204-L-1010xx.DGN	WOOD STREET RESTORATION PLANTING PLAN
3	LP-102	WS2204-L-1020xx.DGN	WOOD STREET RESTORATION PLANTING PLAN
4	LP-103	WS2204-L-1030xx.DGN	WOOD STREET RESTORATION PLANTING PLAN
5	LP-501	WS2204-L-5010xx.DGN	WOOD STREET RESTORATION PLANTING DETAILS
6	LP-502	WS2204-L-5020xx.DGN	WOOD STREET RESTORATION PLANTING DETAILS

NEW BEDFORD,
MASSACHUSETTS

PROFESSIONAL SEAL

CONTRACT • DACW33-94-D-0002

VALUE ENGINEERING PAYS DIVIDENDS

SAFETY PAYS

PREPARED BY: [signature]
PRINCIPAL, A/E FIRM
DATE: Jul 18, 03

This project was designed for the New England District of the U.S. Army Corps of Engineers. The initials or signatures and registration designations of individuals appear on these project documents within the scope of their employment as required by ER 1110-1-8152.

NEW BEDFORD HARBOR SUPERFUND SITE
NEW BEDFORD, MASSACHUSETTS
RESTORATION DESIGN, NORTH OF WOOD STREET

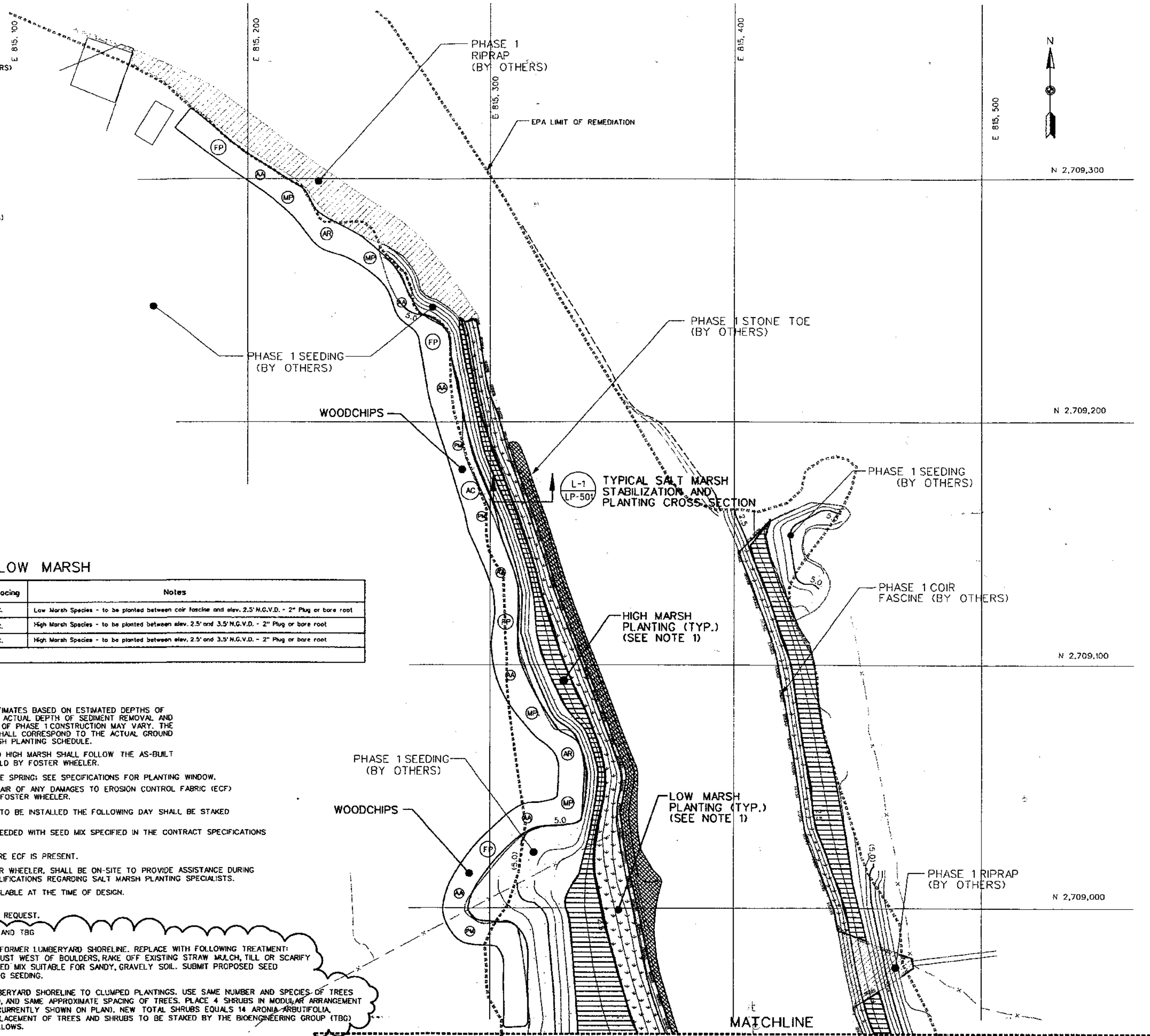
COVER SHEET AND
INDEX TO DRAWINGS

Reference number:
G-001
Sheet 1 of 6

CAD FILE: WS2204-G-001bx.DGN

LEGEND

0 (line)	PHASE 1 CONTOUR
(dashed)	PHASE 1 COIR FASCINE (BY OTHERS)
(dotted)	EPA LIMIT OF REMEDIATION
(dashed)	EXISTING PROPERTY LINES
—x—	EXISTING FENCE LINE
(hatch)	PHASE 1 RIP-RAP (BY OTHERS)
(hatch)	EXISTING RIP-RAP (BY OTHERS)
(hatch)	PHASE 1 STONE TOE (BY OTHERS)
(hatch)	PROPOSED LOW MARSH
(hatch)	PROPOSED HIGH MARSH



PLANT SCHEDULE - HIGH AND LOW MARSH

Symbol	Botanical Name	Common Name	Avg. Spacing	Notes
(low marsh)	*Spartina Alterniflora*	Smooth Cordgrass	1.5' O.C.	Low Marsh Species - to be planted between coir fascine and elev. 2.5' N.G.V.D. - 2" Plug or bare root
(high marsh)	*Spartina patens*	Salt Meadow Cordgrass	1.5' O.C.	High Marsh Species - to be planted between elev. 2.5' and 3.5' N.G.V.D. - 2" Plug or bare root
(high marsh)	*Distichlis spicata*	Salt Grass	1.5' O.C.	High Marsh Species - to be planted between elev. 2.5' and 3.5' N.G.V.D. - 2" Plug or bare root
SEE SHEET LP-502 FOR UPLAND PLANTING PLANT INFORMATION				

NOTES:

1. THE POST-PHASE 1 GROUND SURFACE ELEVATIONS ARE ESTIMATES BASED ON ESTIMATED DEPTHS OF EXCAVATION FOR CONTAMINATED SEDIMENT REMOVAL. THE ACTUAL DEPTH OF SEDIMENT REMOVAL AND ACTUAL GROUND SURFACE ELEVATION AFTER COMPLETION OF PHASE 1 CONSTRUCTION MAY VARY. THE ACTUAL LOW MARSH AND HIGH MARSH PLANTING AREAS SHALL CORRESPOND TO THE ACTUAL GROUND SURFACE ELEVATIONS LISTED IN THE HIGH AND LOW MARSH PLANTING SCHEDULE.
2. THE LINE DELINEATING BORDER BETWEEN LOW MARSH AND HIGH MARSH SHALL FOLLOW THE AS-BUILT 2.5' CONTOUR LINE AND SHALL BE DETERMINED IN THE FIELD BY FOSTER WHEELER.
3. ALL HIGH AND LOW MARSH PLANTING SHALL OCCUR IN THE SPRING; SEE SPECIFICATIONS FOR PLANTING WINDOW.
4. NO PLANTING WORK SHALL BE PERFORMED PRIOR TO REPAIR OF ANY DAMAGES TO EROSION CONTROL FABRIC (ECF) AND/OR COIR FASCINES, OR PRIOR TO THE APPROVAL OF FOSTER WHEELER.
5. ONE DAY PRIOR TO PLANTING, THE LOCATION OF PLANTS TO BE INSTALLED THE FOLLOWING DAY SHALL BE STAKED FOR APPROVAL BY FOSTER WHEELER.
6. ALL DISTURBED AREAS ABOVE ELEVATION 3.5' SHALL BE SEEDED WITH SEED MIX SPECIFIED IN THE CONTRACT SPECIFICATIONS PRIOR TO COMPLETION OF WORK.
7. PLANT MATERIAL SHALL BE INSTALLED THROUGH ECF WHERE ECF IS PRESENT.
8. A SALTMARSH PLANTING SPECIALIST, APPROVED BY FOSTER WHEELER, SHALL BE ON-SITE TO PROVIDE ASSISTANCE DURING ALL PLANTING OPERATIONS. SEE SPECIFICATIONS FOR QUALIFICATIONS REGARDING SALT MARSH PLANTING SPECIALISTS.
9. THE "EPA LIMIT OF REMEDIATION" IS BASED ON DATA AVAILABLE AT THE TIME OF DESIGN. THE ACTUAL LIMIT OF REMEDIATION WORK MAY VARY.
10. SPECIFIC PLANT ARANGEMENT AND LOCATION PER CLIENT REQUEST.

ADDITIONAL NOTES FROM FCN-024-076, 6/12/03, BY FWENC AND TBG

11. DELETE USE OF WOODCHIPS ALONG LINEAR PLANTING AT FORMER LUMBERYARD SHORELINE. REPLACE WITH FOLLOWING TREATMENT:
    - WITHIN LINEAR AREA APPROXIMATELY 10 FEET WIDE JUST WEST OF BOULDERS, RAKE OFF EXISTING STRAW MULCH, TILL OR SCARIFY SURFACE, AND PLANT WITH NATIVE CONSERVATION SEED MIX SUITABLE FOR SANDY, GRAVELY SOIL. SUBMIT PROPOSED SEED MIX FOR APPROVAL. APPLY STRAW MULCH FOLLOWING SEEDING.
12. CHANGE UPLAND TREE AND SHRUB PLANTING ALONG LUMBERYARD SHORELINE TO CLUMPED PLANTINGS. USE SAME NUMBER AND SPECIES OF TREES (4 FRAXINUS, 2 ACER RUBRUM, 1 AMELANCIER CANADENSIS), AND SAME APPROXIMATE SPACING OF TREES. PLACE 4 SHRUBS IN MODULAR ARRANGEMENT AROUND EACH TREE (DOUBLE THE NUMBER OF SHRUBS CURRENTLY SHOWN ON PLAN). NEW TOTAL SHRUBS EQUALS 14 ARONIA ARBUTIFOLIA, 8 MYRICA PENNSYLVANICA, 6 PRUNUS MARITIMA. EXACT PLACEMENT OF TREES AND SHRUBS TO BE STAKED BY THE BIOENGINEERING GROUP (TBG) PRIOR TO PLANTING, IN BETWEEN BOULDERS IF SPACE ALLOWS.
13. ADD PLANTINGS ALONG INSIDE FENCE LINE (APPROXIMATELY 130 FEET IN LENGTH) OF ACUSHNET VIEW PARK PER REQUEST OF ACUSHNET CONSERVATION COMMISSION. TO INCLUDE 10 PRUNUS MARITIMA, 4 BAYBERRY, AND 4 CHOKEBERRY. EXACT PLACEMENT TO BE STAKED BY TBG PRIOR TO PLANTING.

⚠1

ISSUED FOR CONSTRUCTION

SCALE 1"= 20'
10 0 20 40 60 FEET
CONTOUR INTERVAL-0.5'

US Army Corps of Engineers
New England District

Symbol	Description	Date	Appr.
1	ISSUED FOR CONSTRUCTION	07/14/03	TB
0	FINAL DRAFT 100% (BY FWENC)	04/09/03	
C	FINAL DRAFT 100%	04/04/03	
B	ISSUED FOR USACE REVIEW	01/21/03	
A	PRELIMINARY DRAFT REVIEW-IN PROGRESS	11/13/02	

Designed by: The Bioengineering Group
Date: 07/14/03
Rev. 1
Drawn by: ATW
Design file no. WS2204-LP-101XX.dgn
Reviewed by: DB
Drawing code:
Submitted by: ATW
File name:
Plot date:
Plot scale:

THE BIOENGINEERING GROUP
18 COMMERCIAL STREET
SALEM, MASSACHUSETTS

FOSTER WHEELER ENVIRONMENTAL CORP.
133 FEDERAL STREET
BOSTON, MASSACHUSETTS

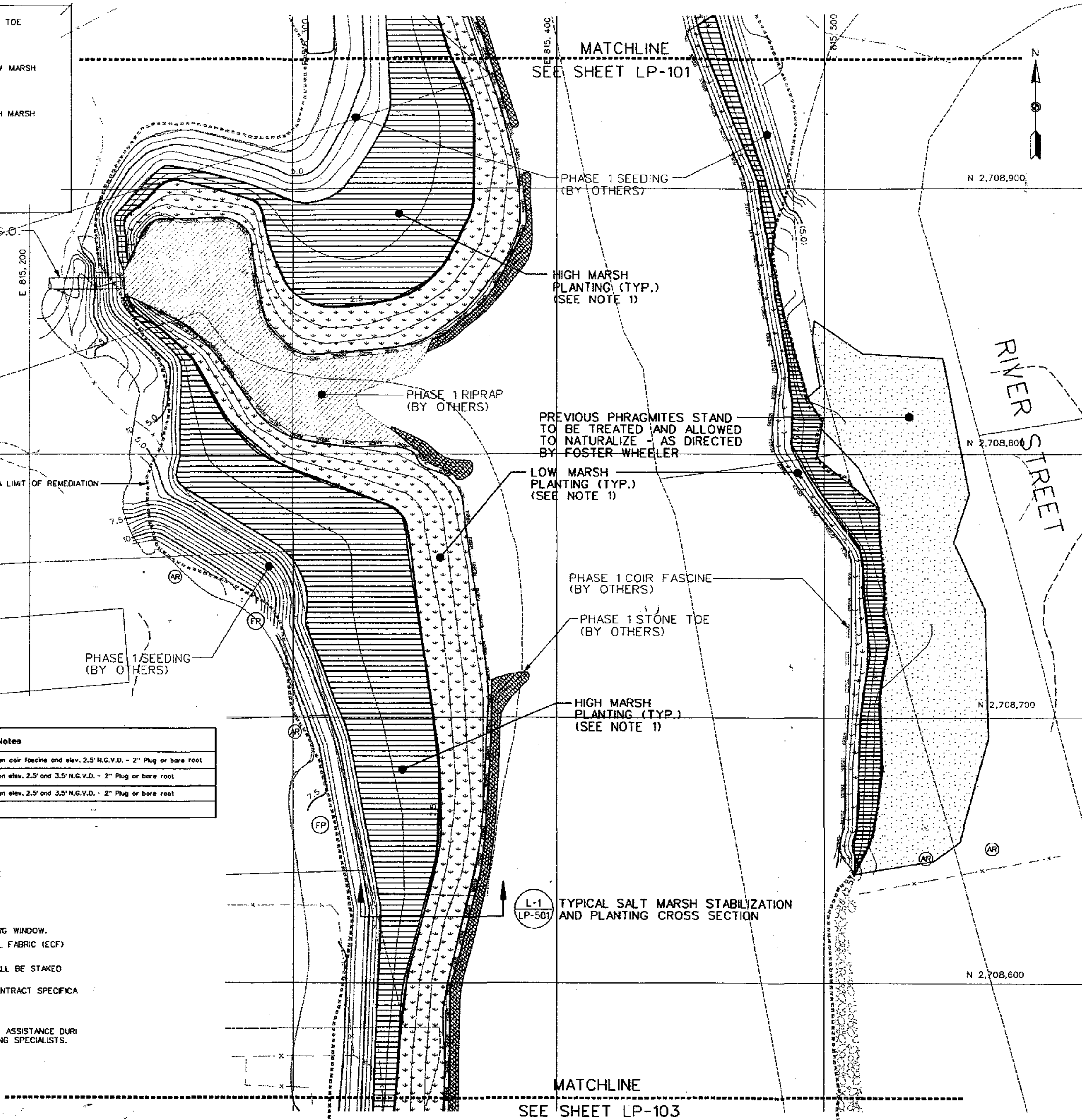
NEW BEDFORD HARBOR SUPERFUND SITE
NEW BEDFORD, MASSACHUSETTS
LANDSCAPE RESTORATION DESIGN, NORTH OF WOOD STREET

WOOD STREET RESTORATION
PLANTING PLAN

Reference number:
LP-101
Sheet 2 of 6

LEGEND

PHASE 1 CONTOUR	PHASE 1 STONE TOE (BY OTHERS)
PHASE 1 COIR FASCINE (BY OTHERS)	PROPOSED LOW MARSH
EPA LIMIT OF REMEDIATION	PROPOSED HIGH MARSH
EXISTING PROPERTY LINES	
EXISTING FENCE LINE	
PHASE 1 RIP-RAP (BY OTHERS)	
EXISTING RIP-RAP	



PLANT SCHEDULE - HIGH AND LOW MARSH

Symbol	Botanical Name	Common Name	Avg. Spacing	Notes
(low marsh symbol)	*Spartina alterniflora*	Smooth Cordgrass	1.5' O.C.	Low Marsh Species - to be planted between coir fascine and elev. 2.5' N.G.V.D. - 2" Plug or bare root
(high marsh symbol)	*Spartina patens*	Salt Meadow Cordgrass	1.5' O.C.	High Marsh Species - to be planted between elev. 2.5' and 3.5' N.G.V.D. - 2" Plug or bare root
(high marsh symbol)	*Distichlis spicata*	Salt Grass	1.5' O.C.	High Marsh Species - to be planted between elev. 2.5' and 3.5' N.G.V.D. - 2" Plug or bare root
SEE SHEET LP-502 FOR UPLAND PLANTING PLANT INFORMATION				

NOTES:

1. THE POST-PHASE 1 GROUND SURFACE ELEVATIONS ARE ESTIMATES BASED ON ESTIMATED DEPTHS OF EXCAVATION FOR CONTAMINATED SEDIMENT REMOVAL. THE ACTUAL DEPTH OF SEDIMENT REMOVAL AND ACTUAL GROUND SURFACE ELEVATION AFTER COMPLETION OF PHASE 1 CONSTRUCTION MAY VARY. THE ACTUAL LOW MARSH AND HIGH MARSH PLANTING AREAS SHALL CORRESPOND TO THE ACTUAL GROUND SURFACE ELEVATIONS LISTED IN THE HIGH AND LOW MARSH PLANTING SCHEDULE.
2. THE LINE DELINEATING BORDER BETWEEN LOW MARSH AND HIGH MARSH SHALL FOLLOW THE AS-BUILT 2.5' CONTOUR LINE AND SHALL BE DETERMINED IN THE FIELD BY FOSTER WHEELER.
3. ALL HIGH AND LOW MARSH PLANTING SHALL OCCUR IN THE SPRING; SEE SPECIFICATIONS FOR PLANTING WINDOW.
4. NO PLANTING WORK SHALL BE PERFORMED PRIOR TO REPAIR OF ANY DAMAGES TO EROSION CONTROL FABRIC (ECF) AND/OR COIR FASCINES, OR PRIOR TO THE APPROVAL OF FOSTER WHEELER.
5. ONE DAY PRIOR TO PLANTING, THE LOCATION OF PLANTS TO BE INSTALLED THE FOLLOWING DAY SHALL BE STAKED FOR APPROVAL BY FOSTER WHEELER.
6. ALL DISTURBED AREAS ABOVE ELEVATION 3.5' SHALL BE SEEDED WITH SEED MIX SPECIFIED IN THE CONTRACT SPECIFICA PRIOR TO COMPLETION OF WORK.
7. PLANT MATERIAL SHALL BE INSTALLED THROUGH ECF WHERE ECF IS PRESENT.
8. A SALTMARSH PLANTING SPECIALIST, APPROVED BY FOSTER WHEELER, SHALL BE ON-SITE TO PROVIDE ASSISTANCE DURI ALL PLANTING OPERATIONS. SEE SPECIFICATIONS FOR QUALIFICATIONS REGARDING SALT MARSH PLANTING SPECIALISTS.
9. THE "EPA LIMIT OF REMEDIATION" IS BASED ON DATA AVAILABLE AT THE TIME OF DESIGN. THE ACTUAL LIMIT OF REMEDIATION WORK MAY VARY.
10. SPECIFIC PLANT ARANGEMENT AND LOCATION PER CLIENT REQUEST.

ADDITIONAL NOTES FROM FCN-024-076, 6/12/03, by FWENC and TBG

11. EXACT PLACEMENT OF 4 TREES ALONG WESTERN SHORELINE TO BE STAKED BY TBG PRIOR TO PLANTING.
12. DELETE 2 *Acer rubrum* TREES ALONG EASTERN SHORELINE JUST NORTH OF TITLEIST PARKING LOT. 1

ISSUED FOR CONSTRUCTION

SCALE 1"= 20'

10 0 20 40 60 FEET

CONTOUR INTERVAL=0.5'

US Army Corps of Engineers
New England District

Symbol	Description	Date	Appr.
1	ISSUED FOR CONSTRUCTION	07/14/03	DB
a	FINAL DRAFT 100X (BY FWENC)	04/09/03	
C	FINAL DRAFT 100X	04/04/03	
B	ISSUED FOR USACE REVIEW	01/21/03	
A	PRELIMINARY DRAFT REVIEW-IN PROGRESS	11/12/02	

Designed by: The Bioengineering Group
Drawn by: ATW
Reviewed by: DB DB
Submitted by: ATW
Date: 07/14/03
Rev.: 1
Design file no. WS2204-LP-102101.dgn
Drawing code:
File name:
Plot date:
Plot scale:

THE BIOENGINEERING GROUP
18 COMMERCIAL STREET
SALEM, MASSACHUSETTS

FOSTER WHEELER
ENVIRONMENTAL CORP.
133 FEDERAL STREET
BOSTON, MASSACHUSETTS

NEW BEDFORD HARBOR SUPERFUND SITE
NEW BEDFORD, MASSACHUSETTS
LANDSCAPE RESTORATION DESIGN, NORTH OF WOOD STREET

WOOD STREET RESTORATION
PLANTING PLAN

Reference number:
LP-102
Sheet 3 of 6

LEGEND

- PHASE 1 CONTOUR
- PHASE 1 COIR FASCINE (BY OTHERS)
- EPA LIMIT OF REMEDIATION
- EXISTING PROPERTY LINES
- EXISTING FENCE LINE
- PHASE 1 RIP-RAP (BY OTHERS)
- EXISTING RIP-RAP (BY OTHERS)
- PHASE 1 STONE TOE (BY OTHERS)
- PROPOSED LOW MARSH
- PROPOSED HIGH MARSH

MATCHLINE
SEE SHEET LP-102

HOUSE

EPA LIMIT OF REMEDIATION

LOW MARSH PLANTING (TYP.) (SEE NOTE 1)

L-1 / LP-501 TYPICAL SALT MARSH STABILIZATION AND PLANTING CROSS SECTION

HIGH MARSH PLANTING (TYP.) (SEE NOTE 1)

APPLY 6" TOPSOIL AND SUN/SHADE NATIVE WILDFLOWER SEED MIX

PHASE 1 SEEDING (BY OTHERS)

PLANT 20 RA IN EXISTING MULCHED AREAS

N 2,708,500

N 2,708,400

N 2,708,300

E 815,200

E 815,300

E 815,400

E 815,500

E 815,600

WOOD STREET BRIDGE

LOW MARSH PLANTING (TYP.) (SEE NOTE 1)

PHASE 1 COIR FASCINE (BY OTHERS)

PHASE 1 SEEDING (BY OTHERS)

PLANT SCHEDULE - HIGH AND LOW MARSH

Symbol	Botanical Name	Common Name	Avg. Spacing	Notes
	Spartina alterniflora	Smooth Cordgrass	1.5' O.C.	Low Marsh Species - to be planted between coir fascine and elev. 2.5' N.G.V.D. - 2" Plug or bare root
	Spartina patens	Salt Meadow Cordgrass	1.5' O.C.	High Marsh Species - to be planted between elev. 2.5' and 3.5' N.G.V.D. - 2" Plug or bare root
	Distichlis spicata	Salt Grass	1.5' O.C.	High Marsh Species - to be planted between elev. 2.5' and 3.5' N.G.V.D. - 2" Plug or bare root

SEE SHEET LP-502 FOR UPLAND PLANTING PLANT INFORMATION

NOTES:

1. THE POST-PHASE 1 GROUND SURFACE ELEVATIONS ARE ESTIMATES BASED ON ESTIMATED DEPTHS OF EXCAVATION FOR CONTAMINATED SEDIMENT REMOVAL. THE ACTUAL DEPTH OF SEDIMENT REMOVAL AND ACTUAL GROUND SURFACE ELEVATION AFTER COMPLETION OF PHASE 1 CONSTRUCTION MAY VARY. THE ACTUAL LOW MARSH AND HIGH MARSH PLANTING AREAS SHALL CORRESPOND TO THE ACTUAL GROUND SURFACE ELEVATIONS LISTED IN THE HIGH AND LOW MARSH PLANTING SCHEDULE.
2. THE LINE DELINEATING BORDER BETWEEN LOW MARSH AND HIGH MARSH SHALL FOLLOW THE AS-BUILT 2.5' CONTOUR LINE AND SHALL BE DETERMINED IN THE FIELD BY FOSTER WHEELER.
3. ALL HIGH AND LOW MARSH PLANTING SHALL OCCUR IN THE SPRING: SEE SPECIFICATIONS FOR PLANTING WINDOW.
4. NO PLANTING WORK SHALL BE PERFORMED PRIOR TO REPAIR OF ANY DAMAGES TO EROSION CONTROL FABRIC (ECF) AND/OR COIR FASCINES, OR PRIOR TO THE APPROVAL OF FOSTER WHEELER.
5. ONE DAY PRIOR TO PLANTING, THE LOCATION OF PLANTS TO BE INSTALLED THE FOLLOWING DAY SHALL BE STAKED FOR APPROVAL BY FOSTER WHEELER.
6. ALL DISTURBED AREAS ABOVE ELEVATION 3.5' SHALL BE SEEDED WITH SEED MIX SPECIFIED IN THE CONTRACT SPECIFICA PRIOR TO COMPLETION OF WORK.
7. PLANT MATERIAL SHALL BE INSTALLED THROUGH ECF WHERE ECF IS PRESENT.
8. A SALTMARSH PLANTING SPECIALIST, APPROVED BY FOSTER WHEELER, SHALL BE ON-SITE TO PROVIDE ASSISTANCE DURI ALL PLANTING OPERATIONS. SEE SPECIFICATIONS FOR QUALIFICATIONS REGARDING SALT MARSH PLANTING SPECIALISTS.
9. THE "EPA LIMIT OF REMEDIATION" IS BASED ON DATA AVAILABLE AT THE TIME OF DESIGN. THE ACTUAL LIMIT OF REMEDIATION WORK MAY VARY.
10. SPECIFIC PLANT ARANGEMENT AND LOCATION PER CLIENT REQUEST.

ADDITIONAL NOTES FROM FCN-024-075, 6/12/03, BY FWENC AND TBG

1. REPLACE "SUN/SHADE NATIVE WILDFLOWER MIX" WITH "NATIVE CONSERVATION GRASS MIX".
2. FOR UPLAND PLANTINGS IN "SQUARE" IMMEDIATELY NORTHWEST OF WOOD STREET BRIDGE, NUMBER AND SPECIES OF TREES AND SHRUBS TO REMAIN THE SAME, BUT LOCATIONS TO BE MODIFIED TO CLUMPED ARRANGEMENT. EXACT LOCATION AND ARRANGEMENT TO BE STAKED BY TBG PRIOR TO PLANTING.
3. FOR 2 ACER RUBRUM TREES ALONG TOP OF BANK ALONG WESTERN SHORELINE AT CORNER OF SUBSTATION, EXACT LOCATION TO BE STAKED BY TBG PRIOR TO PLANTING.

⚠1

ISSUED FOR CONSTRUCTION

SCALE 1"= 20'
CONTOUR INTERVAL=0.5'

US Army Corps of Engineers
New England District

Symbol	Description	Date	Appr.
1	ISSUED FOR CONSTRUCTION	07/14/03	KJM
0	FINAL DRAFT 100% (BY FWENC)	06/09/03	
C	FINAL DRAFT 100%	04/04/03	
B	ISSUED FOR USACE REVIEW	01/31/03	
A	PRELIMINARY DRAFT REVIEW & PROGRESS	11/12/02	

Designed by: The Bioengineering Group
Drawn by: KJM
Reviewed by: GB
Submitted by: KJM
Date: 07/14/03
Design file no.: W52204-LP-103104.dgn
Drawing code:
File name:
Plot offset:
Plot scale:
Rev: 1

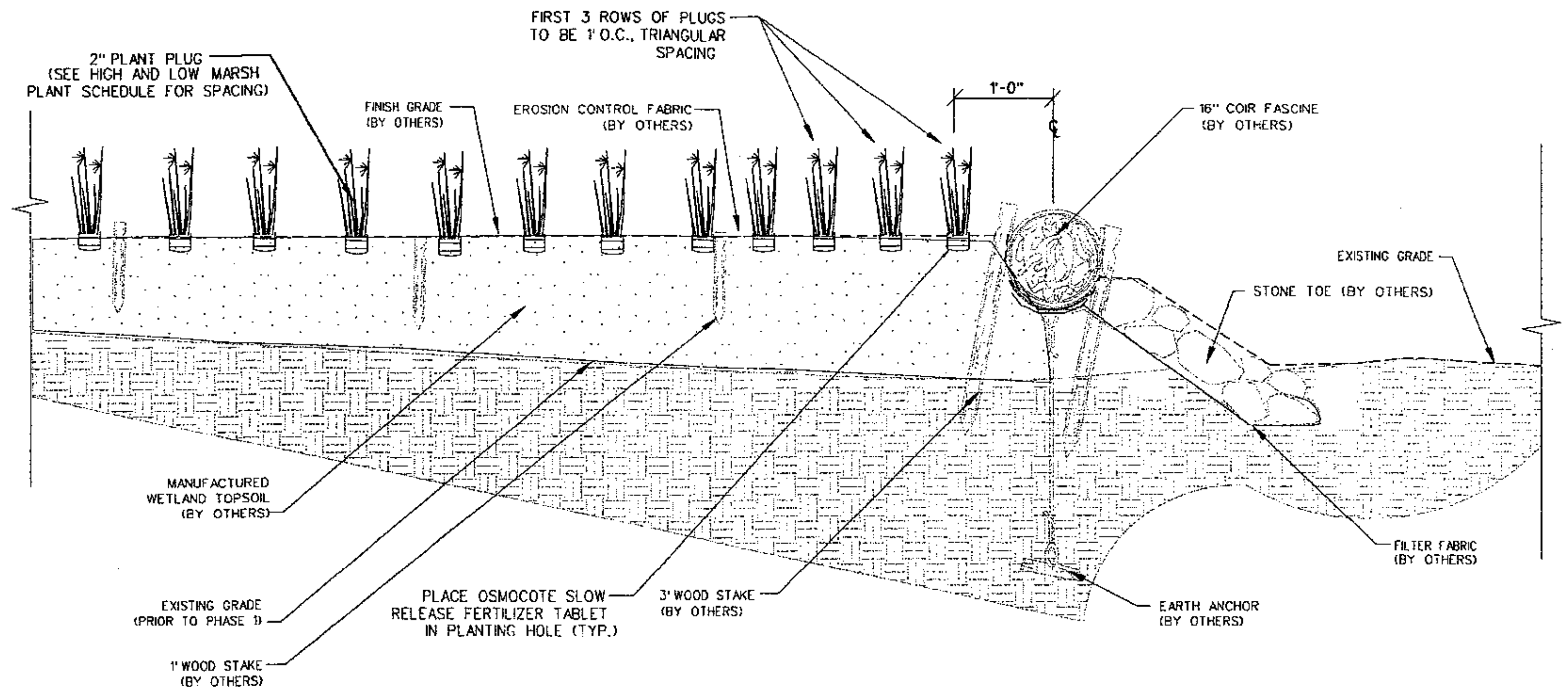
THE BIOENGINEERING GROUP
18 COMMERCIAL STREET
SALEM, MASSACHUSETTS

FOSTER WHEELER ENVIRONMENTAL CORP.
100 SUMMER STREET
BOSTON, MASSACHUSETTS

NEW BEDFORD HARBOR SUPERFUND SITE
NEW BEDFORD, MASSACHUSETTS
LANDSCAPE RESTORATION DESIGN, NORTH OF WOOD STREET

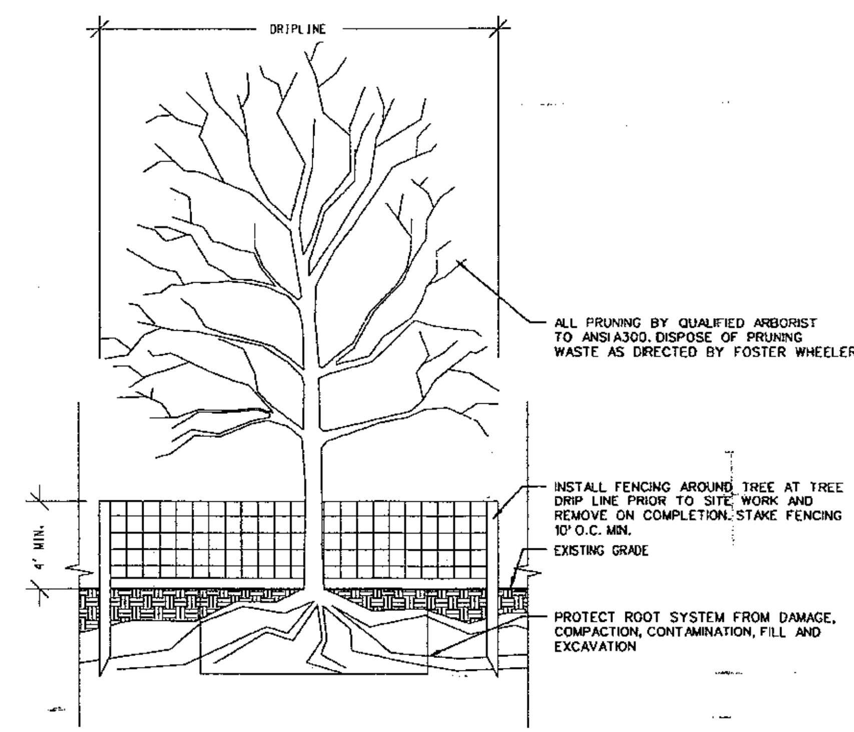
WOOD STREET RESTORATION PLANTING PLAN

Reference number:
LP-103
Sheet 4 of 6



L-1 TYPICAL SALT MARSH STABILIZATION AND PLANTING CROSS SECTION

Not to Scale



L-2 PROTECTION OF EXISTING TREES

NOT TO SCALE

ISSUED FOR CONSTRUCTION

US Army Corps of Engineers
New England District

Symbol	Description	Date	Appr.
1	ISSUED FOR CONSTRUCTION	07/14/03	
0	FINAL DRAFT 100X (BY FWENC)	04/09/03	
C	FINAL DRAFT 100X	04/04/03	
B	ISSUED FOR USACE REVIEW	01/21/03	
A	PRELIMINARY DRAFT REVIEW-IN PROGRESS	11/12/02	

Designed by: The Bioengineering Group
Drawn by: ATW
Reviewed by: DB
Submitted by: ATW
Date: 07/14/03
Rev. 1
Design file no. WS2204-LP-501XX.dgn
Drawing code:
File name:
Plot date:
Plot scale:

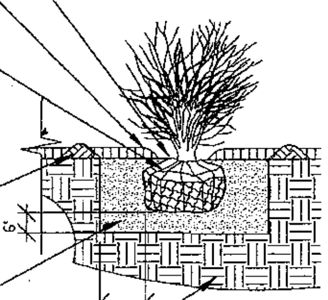
THE BIOENGINEERING GROUP
18 COMMERCIAL STREET
SALEM, MASSACHUSETTS

FOSTER WHEELER
ENVIRONMENTAL CORP.
133 FEDERAL STREET
BOSTON, MASSACHUSETTS

NEW BEDFORD HARBOR SUPERFUND SITE
NEW BEDFORD, MASSACHUSETTS
LANDSCAPE RESTORATION DESIGN, NORTH OF WOOD STREET

WOOD STREET RESTORATION
PLANTING DETAILS

Reference number:
LP-501
Sheet 5 of 6

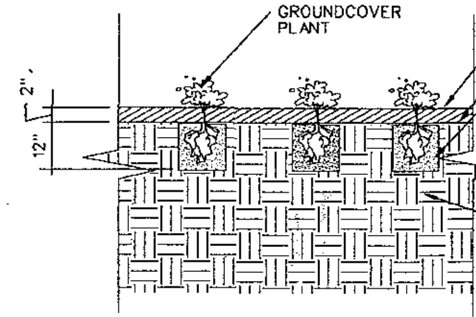


NOTES:

1. SPACING VARIES: REFER TO PLANTING PLAN.
2. SEE SPECIFICATIONS FOR PERFORMANCE STANDARDS

(L-3) SHRUB PLANTING

NOT TO SCALE

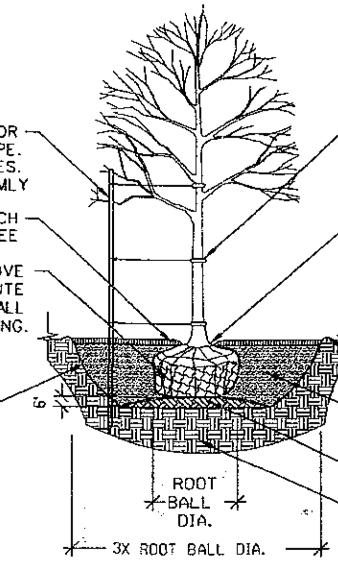


NOTES:

1. SPACING VARIES: REFER TO PLANTING SCHEDULE.
2. SEE SPECIFICATIONS FOR PERFORMANCE STANDARDS

(L-4) GROUNDCOVER PLANTING

NOT TO SCALE



NOTES:

1. CLEANLY PRUNE ALL DAMAGED BRANCHES.
2. TREE SHALL HAVE STRAIGHT TRUNK AND BE PLUMB AFTER SETTLEMENT. CONTRACTOR SHALL ADJUST AS REQUIRED OR AS DIRECTED BY FOSTER WHEELER.
3. ALL TREES SHALL BE FLOODED TWICE WITHIN 24 HOURS OF PLANTING.
4. SEE SPECIFICATIONS FOR PERFORMANCE STANDARDS.

(L-5) DECIDUOUS TREE PLANTING

NOT TO SCALE

PLANT SCHEDULE- UPLAND SPECIES

(FOR RESIDENTIAL/LUMBERYARD BUFFER AND UPLAND PLANTING AREAS ONLY)

TREES

Symbol	Latin Name	Common Name	Spacing	Plant Size
AC	*Amelanchier canadensis*	Serviceberry	10' O.C.	Multistem - 8' height, 3-5 stems
AR	*Acer rubrum*	Red Maple	10' O.C.	Multistem - 8' height, 3-5 stems
FP	*Fraxinus pennsylvanica*	Green Ash	20' O.C.	2" Caliper B&B

SHRUBS

Symbol	Latin Name	Common Name	Spacing	Plant Size
AA	*Aronia arbutifolia*	Red Chokeberry	10' O.C.	5 Gal. Container
MP	*Myrica pensylvanica*	Northern Bayberry	8' O.C.	5 Gal. Container
PM	*Prunus maritima*	Beach Plum	6' O.C.	5 Gal. Container

GROUNDCOVER

Symbol	Latin Name	Common Name	Spacing	Plant Size
RA	*Rhus aromatic 'Gro-Low'*	Fragrant Sumac	4' O.C.	4" Pot

ADDITIONAL NOTE FROM FCN-024-076, 6/12/03, BY FWENC AND TBG

1. PLANTING SUBCONTRACTOR TO SUBMIT PROPOSED SPECIFICATION TO BE USED FOR BACKFILL SOIL MIX FOR TREE AND SHRUB PLANTING DETAILS.

1

ISSUED FOR CONSTRUCTION

US Army Corps of Engineers
New England District

Symbol	Description	Date	Appr.
1	ISSUED FOR CONSTRUCTION	07/14/03	
0	FINAL DRAFT 100% (BY FWENC)	04/09/03	
C	FINAL DRAFT 100%	04/04/03	
B	ISSUED FOR USACE REVIEW	01/21/03	
A	PRELIMINARY DRAFT REVIEW-IN PROGRESS	11/12/02	

Designed by: The Bioengineering Group
Drawn by: ATW
Reviewed by: DB
Submitted by: ATW
Date: 07/14/03
Rev. 1
Design file no. W52204-LP-5021XX.dgn
Drawing code:
File name:
Plot date:
Plot scale:

THE BIOENGINEERING GROUP
18 COMMERCIAL STREET
SALEM, MASSACHUSETTS

FOSTER WHEELER
ENVIRONMENTAL CORP.
133 FEDERAL STREET
BOSTON, MASSACHUSETTS

NEW BEDFORD HARBOR SUPERFUND SITE
NEW BEDFORD, MASSACHUSETTS
LANDSCAPE RESTORATION DESIGN, NORTH OF WOOD STREET

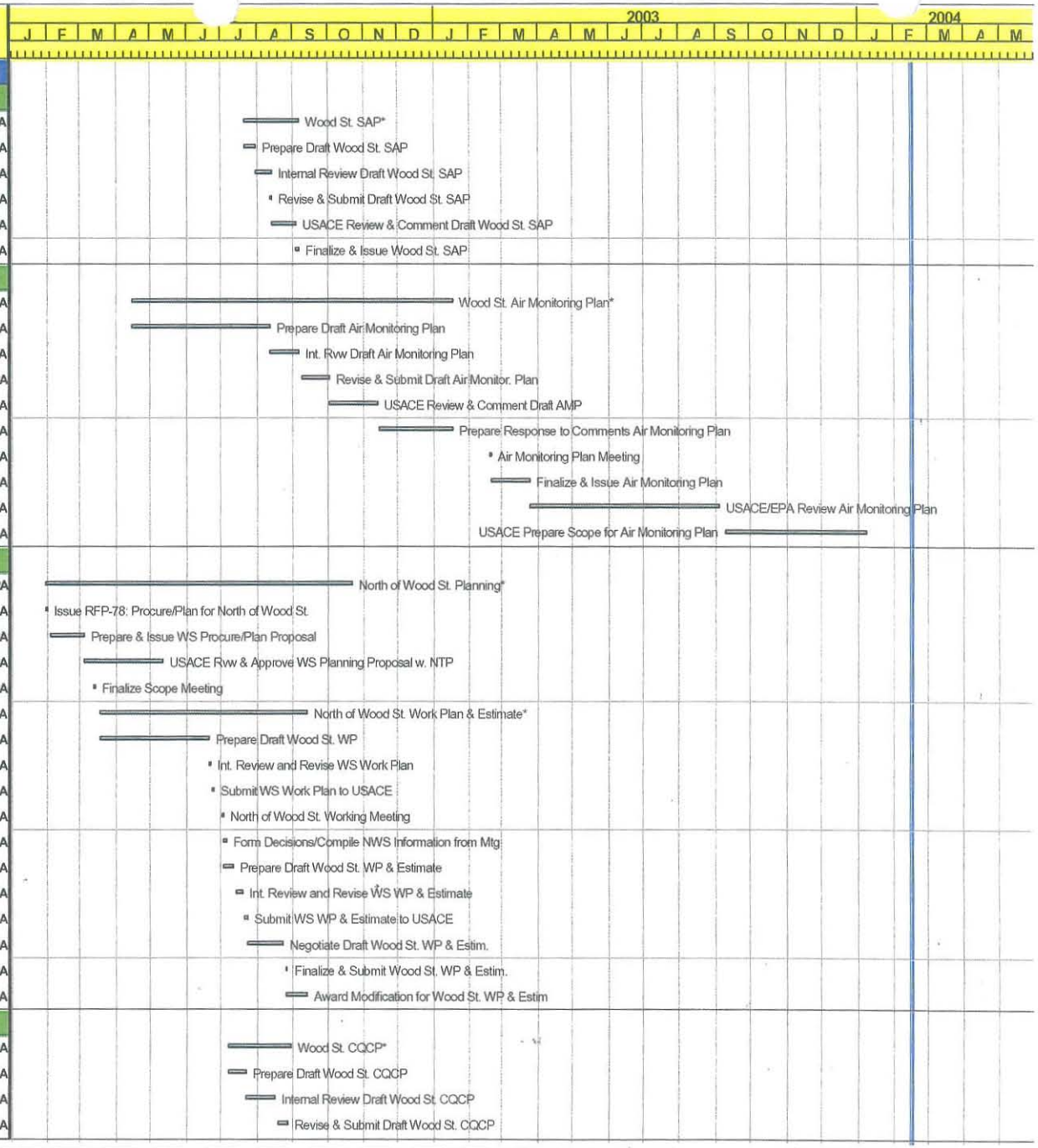
WOOD STREET RESTORATION
PLANTING DETAILS

Reference number:
LP-502
Sheet 6 of 6

Appendix H

Project Schedule

Activity ID	Activity Description	O D	Early Start	Early Finish
NORTH OF WOOD ST.				
Sampling and Analysis Plan (SAP)				
C4WS013010	Wood St. SAP*	34*	22JUL02A	06SEP02A
C4WS013011	Prepare Draft Wood St. SAP	5	22JUL02A	30JUL02A
C4WS013012	Internal Review Draft Wood St. SAP	3	31JUL02A	13AUG02A
C4WS013013	Revise & Submit Draft Wood St. SAP	2	13AUG02A	13AUG02A
C4WS013014	USACE Review & Comment Draft Wood St. SAP	5	14AUG02A	03SEP02A
C4WS013015	Finalize & Issue Wood St. SAP	3	04SEP02A	06SEP02A
Air Monitoring Plan				
C4WS013090	Wood St. Air Monitoring Plan*	193*	15APR02A	17JAN03A
C4WS013091	Prepare Draft Air Monitoring Plan	10	15APR02A	12AUG02A
C4WS013092	Int. Rvw Draft Air Monitoring Plan	5	13AUG02A	06SEP02A
C4WS013093	Revise & Submit Draft Air Monitor. Plan	5	09SEP02A	02OCT02A
C4WS013094	USACE Review & Comment Draft AMP	5	03OCT02A	13NOV02A
C4WS013095	Prepare Response to Comments Air Monitoring Plan	5	15NOV02A	17JAN03A
C4WS013096	Air Monitoring Plan Meeting	1	19FEB03A	19FEB03A
C4WS013097	Finalize & Issue Air Monitoring Plan	20	20FEB03A	24MAR03A
C4WS013098	USACE/EPA Review Air Monitoring Plan	15	25MAR03A	03SEP03A
C4WS013099	USACE Prepare Scope for Air Monitoring Plan	15	10SEP03A	07JAN04A
Work Plan				
C4WS000000	North of Wood St. Planning*	185*	30JAN02A	21OCT02A
C4WS013121	Issue RFP-78: Procure/Plan for North of Wood St.	1	30JAN02A	30JAN02A
C4WS013122	Prepare & Issue WS Procure/Plan Proposal	10	04FEB02A	04MAR02A
C4WS013127	USACE Rvw & Approve WS Planning Proposal w. NTP	10	05MAR02A	10MAY02A
C4WS013310	Finalize Scope Meeting	1	13MAR02A	13MAR02A
C4WS013300	North of Wood St. Work Plan & Estimate*	126*	19MAR02A	13SEP02A
C4WS013320	Prepare Draft Wood St. WP	20	19MAR02A	20JUN02A
C4WS013330	Int. Review and Revise WS Work Plan	2	21JUN02A	21JUN02A
C4WS013350	Submit WS Work Plan to USACE	1	24JUN02A	24JUN02A
C4WS013351	North of Wood St. Working Meeting	1	02JUL02A	02JUL02A
C4WS013352	Form Decisions/Compile NWS Information from Mtg	2	03JUL02A	05JUL02A
C4WS013353	Prepare Draft Wood St. WP & Estimate	10	03JUL02A	11JUL02A
C4WS013354	Int. Review and Revise WS WP & Estimate	6	15JUL02A	19JUL02A
C4WS013355	Submit WS WP & Estimate to USACE	2	22JUL02A	23JUL02A
C4WS013360	Negotiate Draft Wood St. WP & Estim.	5	24JUL02A	23AUG02A
C4WS013370	Finalize & Submit Wood St. WP & Estim.	3	26AUG02A	26AUG02A
C4WS013390	Award Modification for Wood St. WP & Estim	5	26AUG02A	13SEP02A
Construction Quality Control Plan (CQCP)				
C4WS013400	Wood St. CQCP*	39*	08JUL02A	29AUG02A
C4WS013410	Prepare Draft Wood St. CQCP	5	08JUL02A	22JUL02A
C4WS013420	Internal Review Draft Wood St. CQCP	3	23JUL02A	16AUG02A
C4WS013430	Revise & Submit Draft Wood St. CQCP	2	20AUG02A	27AUG02A



Start Date 01MAR94
Finish Date 14FEB05
Data Date 16FEB04

Early Bar
Progress Bar
Critical Activity

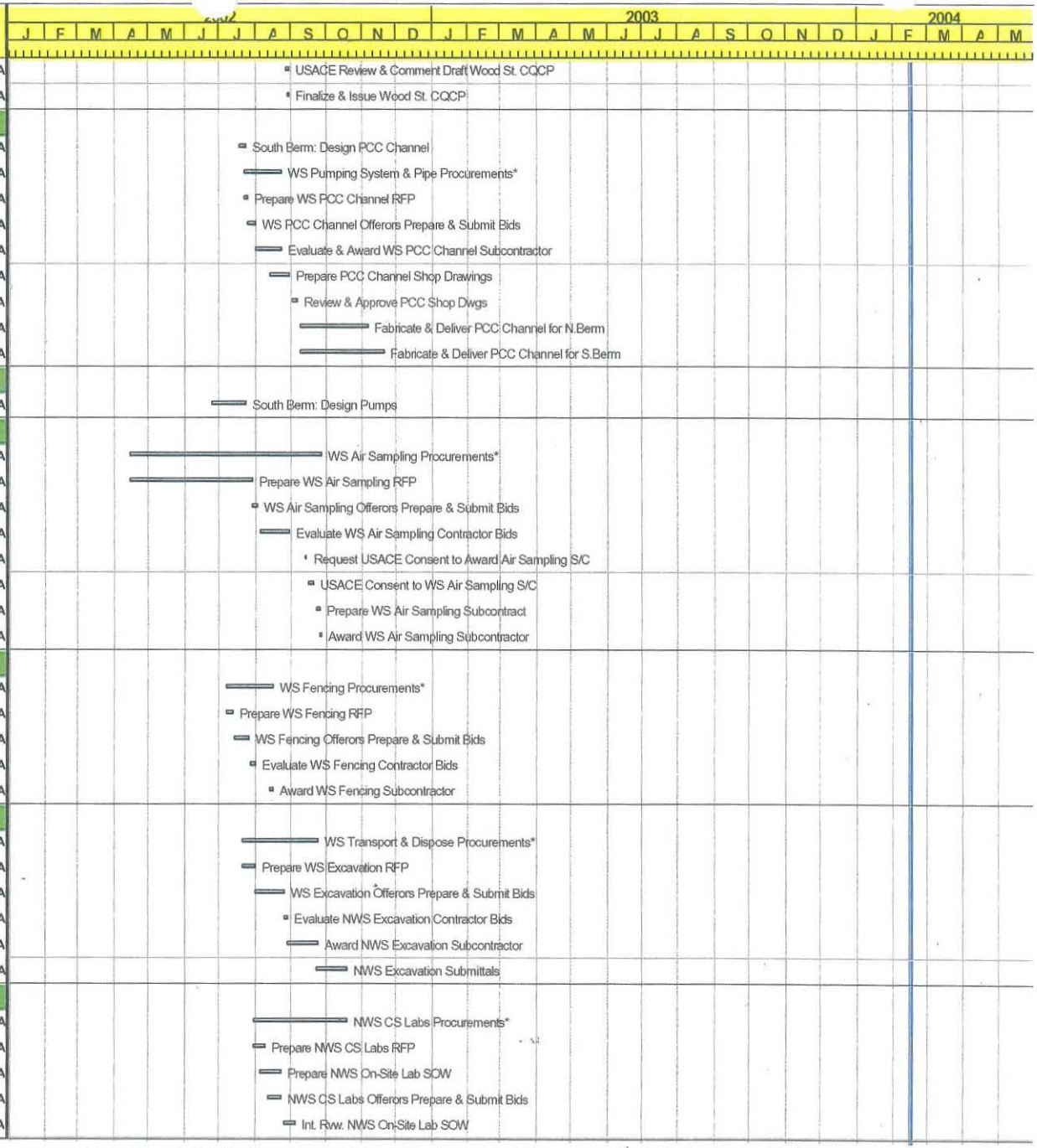
TR4B

Sheet 1 of 5

North of Wood Street
NWS Final Schedule

NORTH OF WOOD STREET
FL- North of Wood St. filter

Activity ID	Activity Description	O D	Early Start	Early Finish
C4WS013440	USACE Review & Comment Draft Wood St. CQCP	5	28AUG02A	29AUG02A
C4WS013450	Finalize & Issue Wood St. CQCP	3	29AUG02A	29AUG02A
Procure PCC Channel				
C4WS220130	South Berm: Design PCC Channel	4	18JUL02A	23JUL02A
C4WS220100	WS Pumping System & Pipe Procurements*	24*	23JUL02A	23AUG02A
C4WS220140	Prepare WS PCC Channel RFP	2	23JUL02A	24JUL02A
C4WS220150	WS PCC Channel Offerors Prepare & Submit Bids	2	25JUL02A	01AUG02A
C4WS220195	Evaluate & Award WS PCC Channel Subcontractor	1	02AUG02A	23AUG02A
C4WS220200	Prepare PCC Channel Shop Drawings	5	14AUG02A	30AUG02A
C4WS220205	Review & Approve PCC Shop Dwgs	3	03SEP02A	06SEP02A
C4WS220209	Fabricate & Deliver PCC Channel for N.Berm	15	09SEP02A	06NOV02A
C4WS220210	Fabricate & Deliver PCC Channel for S.Berm	15	09SEP02A	20NOV02A
Procure Electrical (Pump Power) S/C				
C4WS221035	South Berm: Design Pumps	20	25JUN02A	23JUL02A
Procure Air Sampling				
C4WS220400	WS Air Sampling Procurements*	117*	15APR02A	27SEP02A
C4WS220440	Prepare WS Air Sampling RFP	5	15APR02A	29JUL02A
C4WS220450	WS Air Sampling Offerors Prepare & Submit Bids	5	30JUL02A	02AUG02A
C4WS220460	Evaluate WS Air Sampling Contractor Bids	3	05AUG02A	30AUG02A
C4WS220470	Request USACE Consent to Award Air Sampling S/C	3	13SEP02A	13SEP02A
C4WS220480	USACE Consent to WS Air Sampling S/C	5	16SEP02A	20SEP02A
C4WS220490	Prepare WS Air Sampling Subcontract	5	23SEP02A	25SEP02A
C4WS220495	Award WS Air Sampling Subcontractor	2	26SEP02A	27SEP02A
Procure Fencing Contractor				
C4WS220600	WS Fencing Procurements*	30*	08JUL02A	16AUG02A
C4WS220640	Prepare WS Fencing RFP	5	08JUL02A	12JUL02A
C4WS220650	WS Fencing Offerors Prepare & Submit Bids	8	15JUL02A	26JUL02A
C4WS220660	Evaluate WS Fencing Contractor Bids	4	29JUL02A	01AUG02A
C4WS220695	Award WS Fencing Subcontractor	3	14AUG02A	16AUG02A
Procure Excavation Contractor				
C4WS221000	WS Transport & Dispose Procurements*	45*	22JUL02A	23SEP02A
C4WS221040	Prepare WS Excavation RFP	10	22JUL02A	01AUG02A
C4WS221050	WS Excavation Offerors Prepare & Submit Bids	10	02AUG02A	26AUG02A
C4WS221060	Evaluate NWS Excavation Contractor Bids	5	26AUG02A	28AUG02A
C4WS221095	Award NWS Excavation Subcontractor	5	29AUG02A	23SEP02A
C4WS221099	NWS Excavation Submittals	15	23SEP02A	18OCT02A
Procure Lab Services				
C4WS221200	NWS CS Labs Procurements*	57*	31JUL02A	18OCT02A
C4WS221240	Prepare NWS CS Labs RFP	10	31JUL02A	09AUG02A
C4WS221140	Prepare NWS On-Site Lab SOW	15	05AUG02A	23AUG02A
C4WS221250	NWS CS Labs Offerors Prepare & Submit Bids	10	12AUG02A	23AUG02A
C4WS221145	Int. Rvw. NWS On-Site Lab SOW	3	26AUG02A	04SEP02A



Start Date 01MAR94
Finish Date 14FEB05
Data Date 16FEB04

Early Bar
Progress Bar
Critical Activity

TR4B

Sheet 2 of 5

North of Wood Street
NWS Final Schedule

NORTH OF WOOD STREET
FL- North of Wood St. filter

Activity ID	Activity Description	O D	Early Start	Early Finish
C4WS221260	Evaluate NWS CS Labs Contractor Bids	5	26AUG02A	30AUG02A
C4WS221150	NWS On-Site Lab Offerors Prepare & Submit Bids	10	05SEP02A	12SEP02A
C4WS221160	Evaluate NWS On-Site Lab Contractor Bids	4	13SEP02A	23SEP02A
C4WS221195	Award NWS On-Site Lab Subcontractor	5	24SEP02A	18OCT02A
C4WS221295	Award NWS CS Labs Subcontractor	3	24SEP02A	18OCT02A
Procure Restoration Plantings				
B72094D315	TBG Issue FW 100% NWS Plant'g Ph.2 Plans &	5	06JAN03A	13JAN03A
B72094D320	FW Submit 100% NWS Plant'g Ph.2 Plans	5	14JAN03A	24JAN03A
B72094D325	USACE Rvw & Apprv 100% NWS Plant'g Ph.2 Plans	15	27JAN03A	21FEB03A
B72094D335	FW Finalize 100% NWS Plant'g Ph.2 Plans	10	24FEB03A	09APR03A
C4WS522041	Procure Phase II Restoration S/C	8	30APR03A	12MAY03A
Procure Survey				
C4WS224000	North of Wood St. Survey Procurements*	24*	01MAR02A	03APR02A
C4WS224005	Prepare North of Wood St. Survey SOW	4	01MAR02A	11MAR02A
C4WS224010	WS Survey Vendors Respond to Bids	5	12MAR02A	26MAR02A
C4WS224015	Award Modification for WS Survey Work	3	01APR02A	03APR02A
Home Office Engineering				
C4WS224020	Existing Conditions Survey Field Work	12	04APR02A	24MAY02A
C4WS041121	Prepare WS Dike Design	5	15APR02A	29MAY02A
C4WS224025	Prepare WS Survey Plans	12	28MAY02A	04JUN02A
C4WS041124	Int. Rvw. WS Dike Design	5	30MAY02A	05JUN02A
C4WS041129	Finalize & Submit WS Dike Design	5	06JUN02A	12JUN02A
C4WS220401	NWS Engineering, Surveying & QC	120	30SEP02A	25JUL03A
General Conditions				
C4WS301005	Fall Fish Run	47	15SEP02A	31OCT02A
C4WS400010	NWS Contract Award	0	26SEP02A	
C4WS400020	NWS Notice to Proceed	0	26SEP02A	
C4WS400030	Pre Mobilization NWS Submittals to FW & Corps	10	30SEP02A	11OCT02A
C4WS400040	FW & Corps Approval of NWS Submittals	12	02OCT02A	18OCT02A
C4WS400050	NWS Mobilization & Site Preparation	5	21OCT02A	25OCT02A
C4WS224099	Mobilize/Start North of Wood St. Prelim-Work	0		21OCT02A
C4WS400049	NWS Mobilization & Site Preparation	0		21OCT02A
C4WS400150	Clear & Grub as needed throughout the job	20	23OCT02A	19FEB03A
C4WS400095	Setup Electrical	15	04NOV02A	08JAN03A
C4WS400070	Siltation Controls for North Zone /North Berm Co	2	05NOV02A	05NOV02A
C4WS301015	Setup Stations & Air Monitoring	85	07NOV02A	14MAR03A
C4WS400110	Install Siltation Controls for South Berm Constr	2	15NOV02A	15NOV02A
C4WS400145	Construction of Haul Roads	10	20JAN03A	13FEB03A
C4WS400351	Screen & Pump Material	33	21JAN03A	08APR03A
C4WS400260	Protection of CSO Ditch	10	24FEB03A	06MAR03A
C4WS301010	Spring Fish Run	107	15MAR03A	15JUN03A
C4WS400375	Air Monitoring at DDA	3	21MAR03A	21MAR03A

Start Date 01MAR94
Finish Date 14FEB05
Data Date 16FEB04

Early Bar
Progress Bar
Critical Activity

TR4B

Sheet 3 of 5

North of Wood Street
NWS Final Schedule

NORTH OF WOOD STREET
FL- North of Wood St. filter

Activity ID	Activity Description	OD	Early Start	Early Finish
Staging Areas				
C4WS302005	Install Fencing	10	24OCT02A	05NOV02A
C4WS400060	Set Up Lumberyard Staging Area	3	24OCT02A	04NOV02A
C4WS400140	Set up Titlest Staging Area	2	06NOV02A	06NOV02A
C4WS400100	Set up South Berm Staging Area	8	13NOV02A	18NOV02A
South Berm and Bypass Piping				
C4WS400160	Install Bypass Piping & Pumping	31	19NOV02A	06JAN03A
C4WS400130	Construct South Berm	6	22NOV02A	13DEC02A
C4WS400129	Start South Berm Construction	0		22NOV02A
C4WS400210	Close off River	1	07JAN03A	07JAN03A
C4WS400220	Bypass Dewatering and Pumping Operations	34	07JAN03A	15MAR03A
North Berm				
C4WS400090	Construct North Berm	4	19NOV02A	25NOV02A
C4WS400089	Start North Berm Construction	0		19NOV02A
Excavation Work				
C4WS400080	Excavate North Zone & North Berm Areas	10	05NOV02A	13NOV02A
C4WS400120	Excavate for South Berm	4	19NOV02A	13DEC02A
C4WS400350	NWS Area C Operations*	131*	21NOV02A	30MAY03A
C4WS400360	Transport Non-Vegetated Materials to Area C	52	21NOV02A	21FEB03A
C4WS400170	Non-River Channel Excavation & Haul Road Constr*	50*	11DEC02A	21FEB03A
C4WS400190	Excavate Non-River CSO Zone	15	11DEC02A	03JAN03A
C4WS400179	Start Non-River Channel Excavation	0		11DEC02A
C4WS400230	Excavate River Channel and Complete Haul Rd Con*	32*	07JAN03A	20FEB03A
C4WS400240	Excavate In-River Lumberyard Zone	7	07JAN03A	15JAN03A
C4WS400250	Excavate In-River CSO Zone	8	07JAN03A	21FEB03A
C4WS400180	Excavate Non-River Lumberyard Zone	5	09JAN03A	14JAN03A
C4WS400200	Excavate Non-River Mudflat Zone	15	13JAN03A	21FEB03A
C4WS400270	Excavate In-River Mudflat & Titlest Zones	15	13JAN03A	14FEB03A
C4WS400290	Excavate In-River South Zone	12	29JAN03A	20FEB03A
C4WS400299	Complete In-River Excavation	0		21FEB03A
Confirmatory Sampling				
C4WS301105	On-Site Lab Mob to Site	5	29OCT02A	04NOV02A
C4WS301110	USACE On-Site Lab Validation Process	15	05NOV02A	02DEC02A
C4WS306005	Confirmation Sampling	70	12NOV02A	21FEB03A
C4WS301120	On-Site Lab Analyze Samples	45	03DEC02A	28FEB03A
Phase I Restoration				
C4WS400146	Restoration Submittals	19	28JAN03A	07FEB03A
C4WS400147	Deliver Restoration Material	2	13FEB03A	06MAR03A
C4WS400400	Phase I Restoration- Early Spring 03*	30*	28FEB03A	10APR03A
C4WS400421	In-River Restoration	5	28FEB03A	14MAR03A
C4WS400420	Restore Lumberyard, CSO, South & Mudflat Zones	20	06MAR03A	21MAR03A
C4WS400419	Start NWS Phase I Restoration	0		06MAR03A

Start Date 01MAR94
Finish Date 14FEB05
Data Date 16FEB04

Early Bar
Progress Bar
Critical Activity

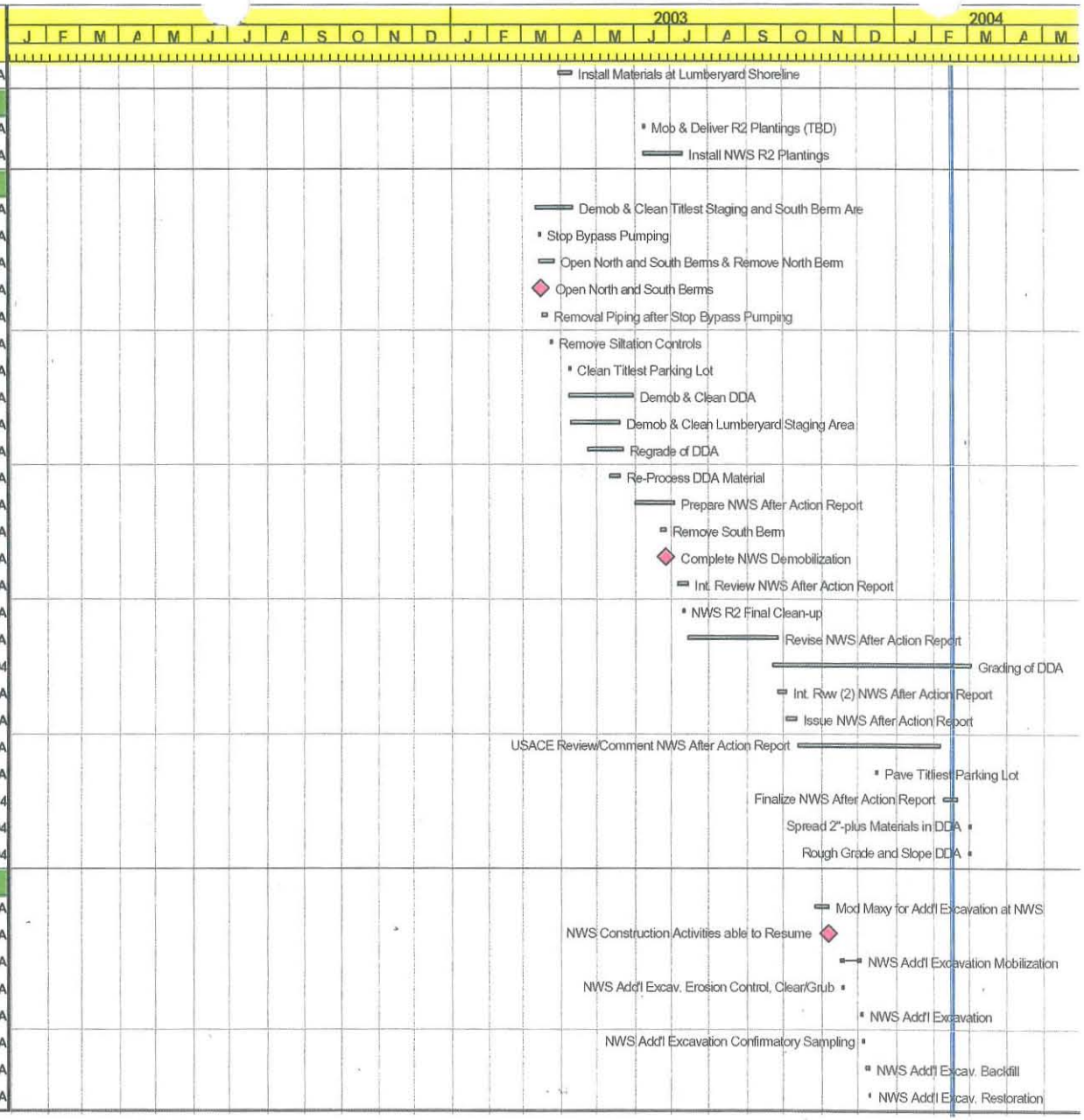
TR4B

Sheet 4 of 5

North of Wood Street
NWS Final Schedule

NORTH OF WOOD STREET
FL- North of Wood St. filter

Activity ID	Activity Description	OD	Early Start	Early Finish
C4WS400425	Install Materials at Lumberyard Shoreline	10	31MAR03A	10APR03A
Phase II Restoration				
C4WS522205	Mob & Deliver R2 Plantings (TBD)	3	09JUN03A	09JUN03A
C4WS522301	Install NWS R2 Plantings	21	09JUN03A	09JUL03A
Demobilization/Complete Work				
C4WS400320	Demob & Clean Titlest Staging and South Berm Are	18	12MAR03A	10APR03A
C4WS400300	Stop Bypass Pumping	1	15MAR03A	15MAR03A
C4WS400310	Open North and South Berms & Remove North Berm	6	15MAR03A	26MAR03A
C4WS400309	Open North and South Berms	0		15MAR03A
C4WS400301	Removal Piping after Stop Bypass Pumping	2	17MAR03A	21MAR03A
C4WS400410	Remove Siltation Controls	3	24MAR03A	25MAR03A
C4WS400329	Clean Titlest Parking Lot	4	08APR03A	09APR03A
C4WS400390	Demob & Clean DDA	5	09APR03A	30MAY03A
C4WS400340	Demob & Clean Lumberyard Staging Area	3	10APR03A	19MAY03A
C4WS400380	Regrade of DDA	5	24APR03A	22MAY03A
C4WS400381	Re-Process DDA Material	10	12MAY03A	19MAY03A
C4WS306045	Prepare NWS After Action Report	40	02JUN03A	03JUL03A
C4WS400311	Remove South Berm	4	23JUN03A	26JUN03A
C4WS400349	Complete NWS Demobilization	0		26JUN03A
C4WS306046	Int. Review NWS After Action Report	5	07JUL03A	14JUL03A
C4WS522401	NWS R2 Final Clean-up	5	10JUL03A	11JUL03A
C4WS306047	Revise NWS After Action Report	5	15JUL03A	25SEP03A
C4N2400000	Grading of DDA	163*	22SEP03A	02MAR04
C4WS306048	Int. Rvw (2) NWS After Action Report	3	26SEP03A	02OCT03A
C4WS306049	Issue NWS After Action Report	5	03OCT03A	10OCT03A
C4WS306050	USACE Review/Comment NWS After Action Report	5	13OCT03A	06FEB04A
C4WS600100	Pave Titliest Parking Lot	1	16DEC03A	16DEC03A
C4WS306055	Finalize NWS After Action Report	10	09FEB04A	20FEB04
C4N2400001	Spread 2"-plus Materials in DDA	2	01MAR04*	02MAR04
C4N2400002	Rough Grade and Slope DDA	2	01MAR04*	02MAR04
Additional Excavation				
C4WS500005	Mod Maxy for Add'l Excavation at NWS	10	27OCT03A	06NOV03A
C40692G545	NWS Construction Activities able to Resume	0		06NOV03A
C4WS500010	NWS Add'l Excavation Mobilization	1	17NOV03A	02DEC03A
C4WS500015	NWS Add'l Excav. Erosion Control, Clear/Grub	1	18NOV03A	18NOV03A
C4WS500020	NWS Add'l Excavation	2	03DEC03A	04DEC03A
C4WS500030	NWS Add'l Excavation Confirmatory Sampling	1	05DEC03A	05DEC03A
C4WS500025	NWS Add'l Excav. Backfill	1	08DEC03A	09DEC03A
C4WS500035	NWS Add'l Excav. Restoration	1	10DEC03A	10DEC03A



Start Date	01MAR94
Finish Date	14FEB05
Data Date	16FEB04

Early Bar
Progress Bar
Critical Activity

TR4B

Sheet 5 of 5

North of Wood Street
NWS Final Schedule

NORTH OF WOOD STREET
FL- North of Wood St. filter

Appendix I

North of Wood Street Project Cost Report

NWS Excavation Subcontractor	Budget	Actuals	Committed	Forecast	Variance	% Var
TASK 01 Mobilization & Preparatory Work						
Subtask/Activity 01.00 Mobilization						
40 **Other Subs**	$742,415	$563,366	$563,366	$563,366	$179,049	
Subtotal 01 .00	$742,415	$563,366	$563,366	$563,366	$179,049	
Total for Subtask 01 Mobilization of Const. Equipment an	$742,415	$563,366	$563,366	$563,366	$179,049	24.12%
Subtask/Activity 05.02 Power Connection Distribution						
40 **Other Subs**	$0	$116,409	$116,409	$116,409	($116,409)	
Subtotal 05 .02	$0	$116,409	$116,409	$116,409	($116,409)	
Total for Subtask 05 Construct Temporary Facilities	$0	$116,409	$116,409	$116,409	($116,409)	
TASK TOTAL 01	$742,415	$679,774	$679,774	$679,775	$62,640	
TASK 03 Sitework						
Subtask/Activity 02.00 Clearing & Grubbing						
40 **Other Subs**	$79,193	$74,915	$74,915	$74,915	$4,278	
Subtotal 02 .00	$79,193	$74,915	$74,915	$74,915	$4,278	
Total for Subtask 02 Clearing & Grubbing	$79,193	$74,915	$74,915	$74,915	$4,278	5.40%
TASK TOTAL 03	$79,193	$74,915	$74,915	$74,915	$4,278	
TASK 07 Air Pollutions/Gas Collection and Control						
Subtask/Activity 04.90 Application of 24 hr Foam						
40 **Other Subs**	$69,568	$0	$0	$0	$69,568	
Subtotal 04 .90	$69,568	$0	$0	$0	$69,568	
Subtask/Activity 04.91 Application of 90 day Foam						
40 **Other Subs**	$27,661	$0	$0	$0	$27,661	
Subtotal 04 .91	$27,661	$0	$0	$0	$27,661	
Total for Subtask 04 Fugitive Dust/Vapor/Gas Emission C	$97,229	$0	$0	$0	$97,229	100.00%
TASK TOTAL 07	$97,229	$0	$0	$0	$97,229	

NWS Excavation Subcontractor	Budget	Actuals	Committed	Forecast	Variance	% Var
TASK 09 Liquid/Sediment/Sludge Coll & Containment						
Subtask/Activity 01.90 Excavate North Zone						
40 **Other Subs**	$62,893	$53,650	$53,650	$53,650	$9,243	
Subtotal 01.90	$62,893	$53,650	$53,650	$53,650	$9,243	
Subtask/Activity 01.91 Excavate Lumber Yard Zone						
40 **Other Subs**	$91,816	$52,040	$52,040	$52,040	$39,776	
Subtotal 01.91	$91,816	$52,040	$52,040	$52,040	$39,776	
Subtask/Activity 01.92 Excavate Titleist Zone						
40 **Other Subs**	$84,675	$58,120	$58,120	$58,120	$26,555	
Subtotal 01.92	$84,675	$58,120	$58,120	$58,120	$26,555	
Subtask/Activity 01.93 Excavate CSO Zone						
40 **Other Subs**	$132,721	$104,466	$104,466	$104,466	$28,255	
Subtotal 01.93	$132,721	$104,466	$104,466	$104,466	$28,255	
Subtask/Activity 01.94 Excavate Mudflat Zone						
40 **Other Subs**	$197,266	$135,369	$135,369	$135,369	$61,897	
Subtotal 01.94	$197,266	$135,369	$135,369	$135,369	$61,897	
Subtask/Activity 01.95 Excavate South Zone						
40 **Other Subs**	$210,441	$106,794	$106,794	$106,794	$103,647	
Subtotal 01.95	$210,441	$106,794	$106,794	$106,794	$103,647	
Subtask/Activity 01.96 Additonal Excavation						
40 **Other Subs**	$251,779	$363,092	$363,092	$363,092	($111,313)	
Subtotal 01.96	$251,779	$363,092	$363,092	$363,092	($111,313)	
Subtask/Activity 01.99 Premium Pay for Excavation						
40 **Other Subs**	$0	$2,176	$2,176	$2,176	($2,176)	
Subtotal 01.99	$0	$2,176	$2,176	$2,176	($2,176)	
Total for Subtask 01 Dredging & Excavating	**$1,031,591**	**$875,707**	**$875,707**	**$875,707**	**$155,884**	**15.11%**

NWS Excavation Subcontractor	Budget	Actuals	Committed	Forecast	Variance	% Var
TASK 09 Liquid/Sediment/Sludge Coll & Containment						
Subtask/Activity 03.01 Stream Diversion Pumping System						
40 **Other Subs**	$577,862	$613,071	$613,071	$613,071	($35,209)	
Subtotal 03.01	$577,862	$613,071	$613,071	$613,071	($35,209)	
Total for Subtask 03 Waste Containment, Portable	$577,862	$613,071	$613,071	$613,071	($35,209)	6.09%
Subtask/Activity 07.90 Construction of North Berm						
40 **Other Subs**	$30,006	$44,274	$44,274	$44,274	($14,268)	
Subtotal 07.90	$30,006	$44,274	$44,274	$44,274	($14,268)	
Subtask/Activity 07.91 Construction of South Berm						
40 **Other Subs**	$125,076	$136,154	$136,154	$136,154	($11,078)	
Subtotal 07.91	$125,076	$136,154	$136,154	$136,154	($11,078)	
Total for Subtask 07 Lagoons/Basins/Tanks/Pump Systen	$155,082	$180,427	$180,428	$180,428	($25,346)	16.34%
Subtask/Activity 90.01 Onsite Operations @ DDA						
40 **Other Subs**	$683,074	$437,892	$437,892	$437,892	$245,182	
Subtotal 90.01	$683,074	$437,892	$437,892	$437,892	$245,182	
Subtask/Activity 90.02 Final Capping @ DDA						
40 **Other Subs**	$47,134	$25,967	$25,967	$25,967	$21,168	
Subtotal 90.02	$47,134	$25,967	$25,967	$25,967	$21,168	
Total for Subtask 90 DDA Operations	$730,208	$463,859	$463,859	$463,859	$266,350	36.48%
Subtask/Activity 91.00 Weather Allowance						
40 **Other Subs**	$0	$178,953	$178,953	$178,953	($178,953)	
Subtotal 91.00	$0	$178,953	$178,953	$178,953	($178,953)	
Total for Subtask 91 Weather Allowance	$0	$178,953	$178,953	$178,953	($178,953)	
TASK TOTAL 09	$2,494,743	$2,312,018	$2,312,018	$2,312,018	$182,726	
TASK 20 Site Restoration						
Subtask/Activity 90.00 Phase I Restoration						
40 **Other Subs**	$634,952	$457,296	$472,296	$476,717	$158,235	
Subtotal 90.00	$634,952	$457,296	$472,296	$476,717	$158,235	
Total for Subtask 90 Phase I Restoration	$634,952	$457,296	$472,296	$476,717	$158,235	24.92%

NWS Excavation Subcontractor		Budget	Actuals	Committed	Forecast	Variance	% Var
TASK 20 Site Restoration							
Subtask/Activity 91.01 Phase II Restoration							
40 **Other Subs**		$14,266	$0	$0	$0	$14,266	
Subtotal 91.01		$14,266	$0	$0	$0	$14,266	
Total for Subtask 91 Phase II Restoration		$14,266	$0	$0	$0	$14,266	100.00%
TASK TOTAL 20		$649,218	$457,296	$472,296	$476,717	$172,501	
TASK 21 Demobilization							
Subtask/Activity 01.00 Removal of Temp Facility							
40 **Other Subs**		$202,458	$63,172	$63,172	$63,172	$139,286	
Subtotal 01.00		$202,458	$63,172	$63,172	$63,172	$139,286	
Total for Subtask 01 Removal of Temporary Facility		$202,458	$63,172	$63,172	$63,172	$139,286	68.80%
TASK TOTAL 21		$202,458	$63,172	$63,172	$63,172	$139,286	
TASK 99 Fee							
Subtask/Activity 99.98 Funding							
90 **Cost Funding**		$0	$0	$0	$0	$0	
Subtotal 99.98		$0	$0	$0	$0	$0	
Total for Subtask 99 Funding		$0	$0	$0	$0	$0	
TASK TOTAL 99		$0	$0	$0	$0	$0	
TOTAL JOB WL	**NWS Excatation Subcontractor**	$4,265,256	$3,587,174	$3,602,174	$3,606,597	$658,660	**15.44%**

NWS T and D Subcontractor		Budget	Actuals	Committed	Forecast	Variance	% Var
TASK 19 Disposal							
Subtask/Activity 90.00 Vegetated Off-site Disposal							
40 Other Subs		$504,040	$420,548	$420,548	$420,548	$83,492	
Subtotal 90.00		$504,040	$420,548	$420,548	$420,548	$83,492	
Total for Subtask 90 Vegetated Off-site Disposal		$504,040	$420,548	$420,548	$420,548	$83,492	16.56%
Subtask/Activity 91.00 Non-Vegetated Off-site Disposal							
40 Other Subs		$0	$0	$0	$0	$0	
Subtotal 91.00		$0	$0	$0	$0	$0	
Total for Subtask 91 Non-Vegetated Off-site Disposal		$0	$0	$0	$0	$0	
TASK TOTAL 19		$504,040	$420,548	$420,548	$420,548	$83,492	
TASK 99 Fee							
Subtask/Activity 99.98 Funding							
90 Cost Funding		$0	$0	$0	$0	$0	
Subtotal 99.98		$0	$0	$0	$0	$0	
Total for Subtask 99 Funding		$0	$0	$0	$0	$0	
TASK TOTAL 99		$0	$0	$0	$0	$0	
TOTAL JOB WM	NWS T and D Subcontractor	$504,040	$420,548	$420,548	$420,548	$83,492	16.56%

NWS Phase II Restoration Sub.	Budget	Actuals	Committed	Forecast	Variance	% Var
TASK 20 Site Restoration						
Subtask/Activity 91.01 YR 2003 - Wetlands Plantings						
40 **Other Subs**	$36,400	$138,044	$138,044	$138,044	($101,644)	
Subtotal 91.01	$36,400	$138,044	$138,044	$138,044	($101,644)	
Subtask/Activity 91.02 YR 2003 - Monitoring/Plant Replace						
40 **Other Subs**	$45,000	$0	$0	$0	$45,000	
Subtotal 91.02	$45,000	$0	$0	$0	$45,000	
Subtask/Activity 91.03 YR 2003 - South Berm						
40 **Other Subs**	$15,924	$61,922	$61,922	$61,922	($45,998)	
Subtotal 91.03	$15,924	$61,922	$61,922	$61,922	($45,998)	
Total for Subtask 91 Site Restoration - YR 2003	$97,324	$199,966	$199,966	$199,966	($102,642)	105.46%
TASK TOTAL 20	$97,324	$199,966	$199,966	$199,966	($102,642)	
TASK 99 Fee						
Subtask/Activity 99.98 Funding						
90 **Cost Funding**	$0	$0	$0	$0	$0	
Subtotal 99.98	$0	$0	$0	$0	$0	
Total for Subtask 99 Funding	$0	$0	$0	$0	$0	
TASK TOTAL 99	$0	$0	$0	$0	$0	
TOTAL JOB WN NWS Phase II Restoration Sub.	$97,324	$199,966	$199,966	$199,966	($102,642)	105.46%

NWS-FW Support	Budget	Actuals	Committed	Forecast	Variance	% Var
TASK 01 Mobilization & Preparatory Work						
Subtask/Activity 03.01 SAP						
10 **FW Labor**	$11,862	$17,041	$17,041	$17,041	($5,179)	
15 **FW Reimbursables**	$380	$606	$606	$606	($226)	
Subtotal 03 .01	$12,242	$17,647	$17,647	$17,647	($5,405)	
Subtask/Activity 03.08 SSHP						
10 **FW Labor**	$4,805	$3,533	$3,533	$3,533	$1,272	
15 **FW Reimbursables**	$158	$4	$4	$4	$154	
Subtotal 03 .08	$4,963	$3,538	$3,538	$3,537	$1,426	
Subtask/Activity 03.09 Air Monitoring Plan						
10 **FW Labor**	$15,941	$61,834	$61,834	$61,834	($45,893)	
15 **FW Reimbursables**	$544	$933	$933	$933	($389)	
40 **Other Subs**	$2,592	$3,390	$3,390	$3,390	($798)	
Subtotal 03 .09	$19,077	$66,156	$66,156	$66,157	($47,080)	
Subtask/Activity 03.13 Work Plan						
10 **FW Labor**	$7,473	$18,512	$18,512	$18,512	($11,039)	
15 **FW Reimbursables**	$155	$1,862	$1,862	$1,862	($1,707)	
Subtotal 03 .13	$7,628	$20,374	$20,374	$20,374	($12,746)	
Subtask/Activity 03.14 Construction Quality Control Plan						
10 **FW Labor**	$1,164	$0	$0	$0	$1,164	
15 **FW Reimbursables**	$67	$0	$0	$0	$67	
Subtotal 03 .14	$1,231	$0	$0	$0	$1,231	
Total for Subtask 03 Submittals/Implementation Plan	**$45,141**	**$107,716**	**$107,716**	**$107,715**	**($62,574)**	**138.62%**
Subtask/Activity 05.02 Power Connection Distribution						
40 **Other Subs**	$52,000	$39,780	$39,780	$39,780	$12,220	
Subtotal 05 .02	$52,000	$39,780	$39,780	$39,780	$12,220	
Total for Subtask 05 Construct Temporary Facilities	**$52,000**	**$39,780**	**$39,780**	**$39,780**	**$12,220**	**23.50%**
TASK TOTAL 01	$97,141	$147,496	$147,496	$147,495	($50,354)	

NWS-FW Support		Budget	Actuals	Committed	Forecast	Variance	% Var
TASK 02 Monitoring, Sampling, Testing, & Analysis							
Subtask/Activity 03.02 Non Real Time							
10	**FW Labor**	$0	$10,282	$10,282	$10,282	($10,282)	
15	**FW Reimbursables**	$0	$112	$112	$112	($112)	
30	**Team Subs**	$203,690	$143,170	$143,170	$143,170	$60,520	
40	**Other Subs**	$22,410	$9,622	$9,622	$9,622	$12,788	
	Subtotal 03.02	$226,100	$163,185	$163,185	$163,186	$62,914	
Total for Subtask 03 Air Monitoring & Sampling		$226,100	$163,185	$163,185	$163,186	$62,914	27.83%
Subtask/Activity 06.02 Confirmatory Sampling							
15	**FW Reimbursables**	$2,168	$2,168	$2,168	$2,168	$0	
20	**Site Materials**	$7,015	$5,841	$5,841	$5,841	$1,174	
25	**Equipment**	$3,108	$3,108	$3,108	$3,108	$0	
40	**Other Subs**	$213,991	$215,447	$215,447	$215,447	($1,456)	
	Subtotal 06.02	$226,282	$226,563	$226,563	$226,564	($282)	
Total for Subtask 06 Sampling Soil & Sediment		$226,282	$226,563	$226,563	$226,564	($282)	0.12%
TASK TOTAL 02		$452,382	$389,749	$389,749	$389,750	$62,632	
TASK 03 Site Work							
Subtask/Activity 05.01 Fencing							
40	**Other Subs**	$53,880	$56,533	$56,533	$56,533	($2,653)	
	Subtotal 05.01	$53,880	$56,533	$56,533	$56,533	($2,653)	
Total for Subtask 05 Fencing		$53,880	$56,533	$56,533	$56,533	($2,653)	4.92%
TASK TOTAL 03		$53,880	$56,533	$56,533	$56,533	($2,653)	
TASK 09 Liquids/Sediments/Sludges Collection							
Subtask/Activity 07.00 Pre-cast Concrete Culverts							
20	**Site Materials**	$24,700	$25,496	$25,496	$25,496	($796)	
	Subtotal 07.00	$24,700	$25,496	$25,496	$25,496	($796)	
Total for Subtask 07 Pre-cast Concrete Culverts		$24,700	$25,496	$25,496	$25,496	($796)	3.22%
TASK TOTAL 09		$24,700	$25,496	$25,496	$25,496	($796)	

NWS-FW Support		Budget	Actuals	Committed	Forecast	Variance	% Var
TASK 10 Demolition							
Subtask/Activity 91.00 Cylinder Removal							
40 **Other Subs**		$0	$413	$413	$413	($413)	
Subtotal 91.00		$0	$413	$413	$413	($413)	
Total for Subtask 91 Cylinder Removal		$0	$413	$413	$413	($413)	
TASK TOTAL 10		$0	$413	$413	$413	($413)	
TASK 21 Demobilization							
Subtask/Activity 06.90 After Action Report							
10 **FW Labor**		$50,000	$125,144	$125,144	$125,144	($75,144)	
15 **FW Reimbursables**		$0	$4,169	$4,169	$4,169	($4,169)	
40 **Other Subs**		$0	$0	$0	$0	$0	
Subtotal 06.90		$50,000	$129,313	$129,313	$129,313	($79,313)	
Subtask/Activity 06.91 Additional Mapping @ NWS FCN098							
10 **FW Labor**		$5,748	$11,863	$11,863	$11,863	($6,115)	
15 **FW Reimbursables**		$256	$713	$713	$713	($457)	
40 **Other Subs**		$0	$0	$0	$0	$0	
Subtotal 06.91		$6,004	$12,576	$12,576	$12,576	($6,572)	
Total for Subtask 06 Submittals		$56,004	$141,889	$141,889	$141,889	($85,885)	153.36%
TASK TOTAL 21		$56,004	$141,889	$141,889	$141,889	($85,885)	
TASK 22 General Requirements							
Subtask/Activity 02.17 Computer Hardware & Software							
20 **Site Materials**		$10,250	$0	$0	$0	$10,250	
Subtotal 02.17		$10,250	$0	$0	$0	$10,250	
Total for Subtask 02 Adminstration Job Office		$10,250	$0	$0	$0	$10,250	100.00%
Subtask/Activity 03.00 Purchasing/Procurement							
10 **FW Labor**		$42,489	$89,610	$89,610	$89,610	($47,121)	
15 **FW Reimbursables**		$3,041	$9,387	$9,387	$9,387	($6,346)	
Subtotal 03.00		$45,530	$98,997	$98,997	$98,997	($53,467)	
Total for Subtask 03 Puirchasing/Procurement		$45,530	$98,997	$98,997	$98,997	($53,467)	117.43%

NWS-FW Support		Budget	Actuals	Committed	Forecast	Variance	% Var
TASK 22 General Requirements							
Subtask/Activity 04.07	**Sciences**						
10	**FW Labor**	$187,071	$197,452	$197,452	$197,452	($10,381)	
15	**FW Reimbursables**	$10,668	$11,638	$11,638	$11,638	($970)	
	Subtotal 04.07	$197,739	$209,090	$209,090	$209,090	($11,351)	
Subtask/Activity 04.11	**Home Office Engineers**						
10	**FW Labor**	$72,736	$109,159	$109,159	$109,159	($36,423)	
15	**FW Reimbursables**	$931	$10,599	$10,599	$10,625	($9,694)	
40	**Other Subs**	$21,942	$36,200	$36,744	$36,744	($14,802)	
	Subtotal 04.11	$95,609	$155,958	$156,502	$156,528	($60,919)	
Subtask/Activity 04.14	**Cost Engineer/Estimator**						
10	**FW Labor**	$19,784	$21,921	$21,921	$21,921	($2,137)	
15	**FW Reimbursables**	$623	$124	$124	$124	$499	
	Subtotal 04.14	$20,407	$22,044	$22,044	$22,045	($1,638)	
Subtask/Activity 04.25	**QC Manager**						
10	**FW Labor**	$175,440	$138,004	$138,004	$138,004	$37,436	
15	**FW Reimbursables**	$13,200	$1,625	$1,625	$1,625	$11,575	
25	**Equipment**	$0	$9,604	$9,604	$9,604	($9,604)	
40	**Other Subs**	$12,541	$2,744	$2,744	$2,744	$9,797	
	Subtotal 04.25	$201,181	$151,977	$151,977	$151,977	$49,204	
Total for Subtask 04	**Engineering, Surveying & QC**	$514,936	$539,070	$539,613	$539,640	($24,704)	4.80%
Subtask/Activity 07.00	**Health & Safety**						
10	**FW Labor**	$3,331	$0	$0	$0	$3,331	
	Subtotal 07.00	$3,331	$0	$0	$0	$3,331	
Subtask/Activity 07.16	**H&S Supplies - PPE**						
20	**Site Materials**	$3,000	$2,396	$2,398	$2,398	$602	
	Subtotal 07.16	$3,000	$2,396	$2,398	$2,398	$602	
Subtask/Activity 07.90	**A/R/P Programs**						
15	**FW Reimbursables**	$0	$307	$307	$307	($307)	

NWS-FW Support		Budget	Actuals	Committed	Forecast	Variance	% Var
TASK 22 General Requirements							
Subtask/Activity 07.90 A/R/P Programs							
	40 Other Subs	$10,000	$13,983	$13,985	$13,985	($3,985)	
	Subtotal 07.90	$10,000	$14,290	$14,291	$14,292	($4,292)	
Total for Subtask 07 Health & Safety		$16,331	$16,686	$16,689	$16,690	($359)	2.20%
Subtask/Activity 10.02 Electrical Usage							
	20 Site Materials	$205,460	$39,795	$39,795	$39,795	$165,665	
	Subtotal 10.02	$205,460	$39,795	$39,795	$39,795	$165,665	
Subtask/Activity 10.04 Water Usage							
	20 Site Materials	$660	$0	$0	$0	$660	
	Subtotal 10.04	$660	$0	$0	$0	$660	
Total for Subtask 10 Project Utilities		$206,120	$39,795	$39,795	$39,795	$166,325	80.69%
Subtask/Activity 11.14 Snow Removal							
	40 Other Subs	$0	$950	$950	$950	($950)	
	Subtotal 11.14	$0	$950	$950	$950	($950)	
Total for Subtask 11 Misc. Project Expenses		$0	$950	$950	$950	($950)	
TASK TOTAL 22		$793,167	$695,498	$696,044	$696,072	$97,095	
TASK 98 Indirect Rate Adjustment - Est.							
Subtask/Activity 01.00 Indirect Rate Adjustment-Estimate							
	98 Indirect Rate Adjustment-Estim	$0	$17,636	$17,636	$27,808	($27,808)	
	Subtotal 01.00	$0	$17,636	$17,636	$27,808	($27,808)	
Total for Subtask 01 Indirect Rate Adjustment - Est.		$0	$17,636	$17,636	$27,808	($27,808)	
TASK TOTAL 98		$0	$17,636	$17,636	$27,808	($27,808)	
TASK 99 Fee							
Subtask/Activity 99.98 Funding							
	90 Cost Funding	$0	$0	$0	$0	$0	
	91 Fee Funding	$0	$0	$0	$0	$0	
	Subtotal 99.98	$0	$0	$0	$0	$0	

NWS-FW Support	Budget	Actuals	Committed	Forecast	Variance	% Var
TASK 99 Fee						
Subtask/Activity 99.99 Fee						
99 Fee	$440,974	$440,889	$440,890	$440,974	$0	
Subtotal 99 .99	$440,974	$440,889	$440,890	$440,974	$0	
Total for Subtask 99 Fee	$440,974	$440,889	$440,890	$440,974	$0	0.00%
TASK TOTAL 99	$440,974	$440,889	$440,890	$440,974	$0	
TOTAL JOB WS NWS FW Support	$1,918,248	$1,915,596	$1,916,145	$1,926,430	($8,182)	0.43%
WL, WM, WN, WS JOB TOTAL:	$6,784,868	$6,123,285	$6,138,833	$6,153,540	$631,328	9.30%
PROJECT TOTAL	$6,784,868	$6,123,285	$6,138,833	$6,153,540	$631,328	9.30%
TOTAL CURRENT PROJECT FUNDING:	$6,784,872					

Appendix J

Final USACE Inspection

March 10, 2004

FINAL GOVERNMENT ACCEPTANCE INSPECTION
New Bedford Harbor Superfund Site
North of Wood Street Project

A Final-Final Government Acceptance Inspection was completed for the North of Wood Street Project based on a site walk performed by TtFWI and USACE on March 10, 2004.

Signatures indicate that the above stated is completed.

John Fusegni (TtFWI CQSM) JOHN FUSEGNI

Chris Turek (USACE) Christopher J Turek 3/10/04

February 20,2004

Final – Final Government Acceptance Inspection
New Bedford Harbor Superfund Site
North of Wood Street Remedintion Project

A Final - Final Government Acceptance Inspection was conducted on Monday February 11, 2004 at 1100 hrs. The following personnel were present: Chris Turek (USACE), Bill McIntyre (USACE) and John Fusegni (TtFWI).

It was determined that the North of Wood Street Project would be considered complete and work satisfactorily accepted by TtFWI and USACE.

Signatures indicate concurrence that the above verbiage is true and accurate.

John Fusegni (TtFWI QCSM) _____

Chris Turek (USACE Project Engineer) _____

May 5, 2003

FINAL GOVERNMENT ACCEPTANCE INSPECTION

New Bedford Harbor Superfund Site

North of Wood Street Remediation Project

A Final Government Acceptance Inspection was conducted on Monday May 5, 2003 at 1100 hours. The following personnel were present: R. Lecuyer (USACE), J. Kraycik (FWENC), J. Fusegni (FWENC) and A. Steinhoff (Maxymillian Technologies).

The Pre-Final Inspection Punch List (attached) was reviewed for completeness. In addition, the site was inspected to determine any additional outstanding tasks prior to Maxymillian departing site.

It was determined that the North of Wood Street Remediation Project would be considered complete and work satisfactorily accepted by FWENC and USACE when the following tasks were accomplished:

1) Mark in the field and provide as-built locations of the electrical stick-up at previous North Berm location.
2) Cut grade stakes in the coir logs flush at the toe of the Lumberyard slope.
3) Remove fabric and place dense grade material at South Lumberyard entrance.
4) Re-seed three (3) areas on Western shoreline identified during inspection.
5) Remove two (2) concrete controller pads at South berm after Landerholm has removed controllers.

Signature indicates concurrence that the above items have been completed.

J. Kraycik (FWENC QC MGR) _____ 5/16/03

R. Lecuyer (USACE QA REP) _____ 5/19/03

Pre-Final Punchlist Inspection

4-2-03

Attendees:
Foster Wheeler: John Fusegni, Mark Gouveia, Joe Kiacyk
Maxymillian Technologies: Al Steinhoff, Michael Coody

Lumberyard

- North entrance; pull back gravel, sweep
- Remove all MT installed stakes in river and on east shore
- Remove all MT installed high-visibility fence and bales
- Temporary fence; check to see if sound
- Remove all MT installed erosion control
- Mulch hay bales into top of slope
- South entrance, dust dense graded aggregate over existing
- Layout 3.5 elevation in rip rap area. Review with FW prior to beginning work
- Repair topsoil south of rip rap
- Back up toe stone along eastern shore, north of dock
- Grade site with material available on site and remove all debris and trash *
- Install large round stone for drive protection- start near foundation *
- Pile and dispose of debris *

CSO

- Remove stakes
- Police area
- Correct erosion behind tar paper shack *
- Possibility of installing hay bales/silt fence *
- Install rebar stakes to pressure treated landscape tie at stockade fence *

Mudflat

- Remove high visibility fence adjacent to Santos' property
- Remove chain link and tie existing fences together

North of Wood Street

- Grade area per discussion *
- Remove project generated debris
- Use wood chips for erosion control at slopes
- Install drain swale- FW to advise *
- Add coir logs along northwest bridge abutment *
- Remove silt fence

North of Titleist

- Expose riprap in northwest corner of parking lot
- Remove stumps and grade
- Spread chips and mulch
- Install additional swales per FW direction *
- Sweep and wash paved area
- Mulch hay bales in disturbed areas

South Berm

- Seed and mulch at the top of rip rap along western shore with existing haybales
- Grade around electrical pads
- Reestablish boat ramp
- Return stairs to FW

* Indicates work not covered by the original project's scope of work

Appendix K

Field Change Notices

TETRA TECH FW, INC.

Field Change Notification Log
for a specific job number

2/26/2004

NBH T.O.#24 - Construction

FCN No.	FCN Description	Status Code	Date	FCN Value	Remarks
WL Excavation Subcontractor					
FCN24035	Electrical Connection/Dist. (NWS)	CLO	10/30/2002	$96,000	Additional requirements from NStar for power supply at NWS. Underground installation required. Not included on the original estimate. CLOSED 11/24/03 - This FCN was issued for documentation purposes only - no further action is required (per PM).
FCN24037	NWS Excavation Elevations	CLO	11/20/2002	$187,000	Original excavation limits have been modified as directed by USACE/EPA. 11/24/03 - This FCN will be closed when RFP#95 is fully funded. 12/17/03 Closed - Rec'd Funding Mod 2418.
FCN24044	NWS- Stream Diversion	CLO	12/19/2002	$72,000	Original work plan called for providing a pumping rate of 20,000 gpm @ North berm. Recent rainfall has exceeded this rate. Two (2) new 20-in. pumps are required to replace existing 12-in. pumps. 11/24/03 - This FCN will be closed when RFP#95 is fully funded. 12/17/03 Closed - Rec'd Funding Mod 2418.
FCN24045	NWS changes	CLO	1/3/2003	$20,642	Work area at the south berm has changed the drainage of the parking area in the back of Bay Side Builders causing water to collect. Gravel will not seal the east end of the south berm. Also, raise S. Berm elevation. 01 0100 40 WL - 9957, 09 0791 40 WL - 7818, 09 9001 40 WL - 2,865 CLOSED 11/24/03 - This FCN was issued for documentation purposes only - no further action is required.
FCN24047	NWS Backfill/CDA	CLO	1/14/2003	$10,000	Revise CDA boundaries to match the backfill limits. This FCN also requires a portion of CDA 6 to be backfilled with 1-ft clean backfill. CLOSED 11/24/03 - This FCN was issued for documentation purposes only - no further action is required (per PM).
FCN24050	NWS- Overtime	CLO	1/29/2003	$10,400	Overtime required for MT to meet project schedule and an on-time completion. Overtime to be worked for trucking and DDA material handling tasks- 2hrs./day. CLOSED 11/24/03 - This FCN was issued for documentation purposes only - no further action is required (per PM).
FCN24055	NWS Timberpiles	CLO	3/3/2003	$3,800	Timberpiles were encountered during excavation under the Wood Street bridge and the south zone. The area does not get backfill material during restoration and will leave the pile sticking up above the mud line. 11/24/03 - This FCN will be closed when RFP#95 is fully funded. 12/17/03 Closed - Rec'd Funding Mod 2418.
FCN24060	NWS- Restoration Overtime	CLO	4/7/2003	$22,345	Required OT to complete restoration work prior to March 15, 2003 deadline. CLOSED 11/24/03 - This FCN was issued for documentation purposes only - no further action is required (per PM).
FCN24061	Drainage Swales	CLO	4/17/2003	$33,100	Install 7 drainage swales to collect and channel runoff to the river to prevent the return of phragmites in the restored areas north of the Wood St. Bridge. 11/24/03 - This FCN will be closed when RFP#95 is fully funded. 12/17/03 Closed - Rec'd Funding Mod 2418.
FCN24062	By-pass pumping system	CLO	4/22/2003	$42,379	Delays due to weather conditions for the by-pass pumping system. 11/24/03 - This FCN will be closed when RFP#95 is fully funded. 12/17/03 Closed - Rec'd Funding Mod 2418.
FCN24067	Slurry processing operation costs	CLO	5/6/2003	$129,164	MT requesting equitable adjustment to contract for reduced efficiency and additional costs incurred at the slurry operation in the DDA due to severe weather conditions. 11/24/03 - This FCN will be closed when RFP#95 is fully funded. 12/17/03 Closed - Rec'd Funding Mod 2418.
FCN24068	DDA Grading	CLO	5/9/2003	($32,798)	Delay capping of the DDA. Grading will still occur as originally specified. Elimination of capping will result in a credit of approx. $32,800. 11/24/03 - This FCN will be closed when RFP#95 is fully funded. 12/17/03 Closed - Rec'd Funding Mod 2418.
FCN24105	Titleist Parking Lot - Paving	CLO	11/17/2003	$26,000	This activity was removed from Mary's contract with Change 9. This is a revised scope and is a different product than the original scope. 11/24/03 - This FCN will be closed when RFP#95 is fully funded. 12/17/03 Closed - Rec'd Funding Mod 2418.
FCN24108	NWS Field Screening	APP	12/4/2003	$3,500	Field screening of soils at NWS.
		Job Subtotal:		$622,532	

Status Code Legend: OPN = FCN Opened But Not Yet Submitted NEW = New FCN Submittal-Approval Pending APP = FCN Submittal Approved (Not Negotiated/Funded) CLO = FCN Negotiated ,Funded E = Disapproved

TETRA TECH FW, INC.

Field Change Notification Log
for a specific job number

2/26/2004

NBH T.O.#24 - Construction

FCN No.	FCN Description	Status Code	Date	FCN Value	Remarks
WM NWS T and D Subcontractor					
FCN24038	NWS DDA Material Management	CLO	11/26/2002	($974,769)	Modify methods of material management at the DDA/Cell 1 as directed by USACE: Slurry and pump soft sediments from the DDA into Cell 1 rather than transport and dispose off-site (TSCA material). Job WL (Excavation Sub) for Maxy Credit Line Item #12 ($-283,416) and perform work for $308,500 with an additional cost of $25,084. Job WM T&D sub will have a credit for sediments sotred in cell one and not shipped ($-1,325,000) and cost for additional vegetated material will be $325,147 for a total cost decrease of (-$1,000,000). The current forecast for this FCN is (-$1,132,452). 11/24/03 - This FCN will be closed when RFP#95 is fully funced. 12/17/03 Closed - Rec'd Funding Mod 2418.
		Job Subtotal:		($974,769)	
WN Site Restoration - Phase II					
FCN24076	NWS Phase II Restoration Plantings	CLO	5/12/2003	$10,000	Revise plantings in upland areas as shown on latest Restoration Planting Plan (dated 4/9/03) to address various comments from EPA, Corps, and internal. 11/24/03 - This FCN will be closed when RFP#95 is fully funded. 12/17/03 Closed - Rec'd Funding Mod 2418.
FCN24078	NWS Phase II Restoration Plantings	CLO	7/3/2003	$1,295	Delete the use of wood chips along linear planting at former lumberyard shoreline and replace with conservation seed mix in 3 inches of topsoil. 11/24/03 - This FCN will be closed when RFP#95 is fully funded. 12/17/03 Closed - Rec'd Funding Mod 2418.
		Job Subtotal:		$11,295	
WS NWS FW Support					
FCN24025	Trustee Restoration @ Lumber Yard	CLO	6/17/2002	$35,000	The USACE has eliminated the design of wetlands lagoon at south end of Lumber Yard.
FCN24027	N. of Wood St. Procurement	CLO	8/19/2002	$262,376	Closed. This s FCN was funded in Mod 2412 dated 9/13/02.
FCN24040	NWS On-Site Laboratory	CLO	12/5/2002	$35,000	Work Plan and Estimate included PCB analysis by an off-site lab. USACE and FWENC agree that the use of an on-site lab, will result in a cost savings by increasing turn-around-times and flexibility. 11/24/03 - This FCN will be closed when RFP#95 is fully funded. 12/17/03 Closed - Rec'd Funding Mod 2418.
FCN24046	NWS Surveying	CLO	1/7/2003	$0	Closed. No cost change. The work plan and estimate were based on using a Mass. Registered Professional Land Surveyor to prepare as-built drawing for NWS. USACE stated this would not be necessary if the contractor were to use on board GPS.
FCN24049	NWS- Unknown Cylinder Removal	CLO	1/29/2003	$12,000	A compressed gas cylinder with unknown contents was discovered during excavation at NWS project. FWENC must hire a qualified Subcontractor to investigate, characterize and properly dispose of this cylinder. CLOSED 11/24/03 - This FCN was issued for documentation purposes only - no further action is required (per PM).
FCN24065	NWS Fencing	CLO	4/28/2003	$10,000	Three areas required a change in the fencing. 11/24/03 - This FCN will be closed when RFP#95 is fully funded. 12/17/03 Closed - Rec'd Funding Mod 2418.
FCN24098	Add'l Mapping @ North of Wood St.	CLO	11/10/2003	$6,000	EPA requested a map of the NWS Remediation for communication with property owners. 11/24/03 - This FCN will be closed when RFP#95 is fully funded. 12/17/03 Closed - Rec'd Funding Mod 2418.
		Job Subtotal:		$360,376	
		Total of FCNs Submitted		$19,434	

Status Code Legend: OPN = FCN Opened But Not Yet Submitted NEW = New FCN Submittal-Approval Pending APP = FCN Submittal Approved (Not Negotiated/Funded) CLO = FCN Negotiated Funded E = Disapproved

TETRA TECH FW, INC.

Field Change Notification Log
for a specific job number

10/14/2004

NBH T.O.#24 - Construction

FCN No.	FCN Description	Status Code	Date	FCN Value	Remarks
WS NWS FW Support					
FCN24025	Trustee Restoration @ Lumber Yard	CLO	6/17/2002	$35,000	The USACE has eliminated the design of wetlands lagoon at south end of Lumber Yard.
FCN24027	N. of Wood St. Procurement	CLO	8/19/2002	$262,376	Closed. This s FCN was funded in Mod 2412 dated 9/13/02.
FCN24040	NWS On-Site Laboratory	CLO	12/5/2002	$35,000	Work Plan and Estimate included PCB analysis by an off-site lab. USACE and FWENC agree that the use of an on-site lab. will result in a cost savings by increasing turn-around-times and flexibility. 11/24/03 - This FCN will be closed when RFP#95 is fully funded. 12/17/03 Closed - Rec'd Funding Mod 2418.
FCN24046	NWS Surveying	CLO	1/7/2003	$0	Closed. No cost change. The work plan and estimate were based on using a Mass. Registered Professional Land Surveyor to prepare as-built drawing for NWS. USACE stated this would not be necessary if the contractor were to use on board GPS.
FCN24049	NWS- Unknown Cylinder Removal	CLO	1/29/2003	$12,000	A compressed gas cylinder with unknown contents was discovered during excavation at NWS project. FWENC must hire a qualified Subcontractor to investigate, characterize and properly dispose of this cylinder. CLOSED 11/24/03 - This FCN was issued for documentation purposes only - no further action is required (per PM).
FCN24065	NWS Fencing	CLO	4/28/2003	$10,000	Three areas required a change in the fencing. 11/24/03 - This FCN will be closed when RFP#95 is fully funded. 12/17/03 Closed - Rec'd Funding Mod 2418.
FCN24098	Add'l Mapping @ North of Wood St.	CLO	11/10/2003	$6,000	EPA requested a map of the NWS Remediation for communication with property owners. 11/24/03 - This FCN will be closed when RFP#95 is fully funded. 12/17/03 Closed - Rec'd Funding Mod 2418.
FCN24108	NWS Field Screening	APP	12/4/2003	$3,500	Field screening of soils at NWS.
		Job Subtotal:		$363,876	
		Total of FCNs Submitted		$363,876	

Status Code Legend: OPN = FCN Opened But Not Yet Submitted NEW = New FCN Submittal-Approval Pending APP = FCN Submittal Approved (Not Negotiated/Funded) CLO = FCN Negotiated /Funded E = Disapproved

Appendix L

Photo Log

NEW BEDFORD HARBOR PHOTOGRAPHIC LOG

PROJECT: **North of Wood Street Remediation**

PHOTO #	DATE	TAKEN BY	PHOTO DESCRIPTION
WS170001	1/7/02	JPK	Wood St. bridge- looking SW at low tide.
WS170002	1/7/02	JPK	Mudflats at the CSO-026 outflow area.
WS170003	1/7/02	JPK	Western shoreline Acushnet River near low tide.
WS170004	1/7/02	JPK	View of River NW from Wood St. bridge.
WS170005	1/7/02	JPK	Western shoreline mudflats North of CSO-026.
WS170006	1/7/02	JPK	Western shoreline mudflats looking SW toward bridge.
WS170007	1/7/02	JPK	Acushnet River- looking N toward Early Action.
WS170008	1/7/02	JPK	View of River N from Lumberyard to NAPA.
WS170009	1/7/02	JPK	View East from Lumberyard to Early Action site.
WS170010	1/7/02	JPK	Acushnet River near low tide- looking S from Early Action.
WS170011	1/7/02	JPK	View of River- looking S from Braley property.
WS170012	1/7/02	JPK	View of River- looking S from Braley property.
WS170013	1/7/02	JPK	Stream at the South end of Braley property.
WS170014	1/7/02	JPK	View of River- looking S from Braley property.
WS170015	1/7/02	JPK	Stream at the South end of Braley property.
WS170016	1/7/02	JPK	Stream at the South end of Braley property.
WS170017	1/7/02	JPK	Boulders along shoreline in vicinity of Acushnet Park.
WS170018	1/7/02	JPK	Shoreline in vicinity of Acushnet park.
WS170019	1/7/02	JPK	Shoreline in vicinity of Acushnet park.
WS170020	1/7/02	JPK	View of River- looking S from Braley property.
WS170021	1/7/02	JPK	Eastern shoreline at Acushnet park.
WS170022	1/7/02	JPK	Eastern shoreline from CSO-026 outfall.
WS170023	1/7/02	JPK	View of River looking S from CSO-026 outfall.
WS170024	1/7/02	JPK	CSO-026 outfall pipe.
WS170025	1/7/02	JPK	Mudflats at the CSO-026 outflow area.
WS170026	1/7/02	JPK	CSO-026 tidal inlet near low tide.
WS170027	1/7/02	JPK	CSO-026 tidal inlet near low tide.
WS6170001	6/17/02	MG	Acushnet park looking S toward Wood St Bridge.
WS6170002	6/17/02	MG	Acushnet park looking W to the CSO ditch area.
WS6170003	6/17/02	MG	River looking N from the Wood St Bridge.
WS6170004	6/17/02	MG	View from bridge looking N to E shoreline.
WS6170005	6/17/02	MG	View from bridge looking S- future berm location.
WS6170006	6/17/02	MG	View from future berm location looking N to bridge.
WS6170007	6/17/02	MG	View from bridge looking N to W shoreline.
WS6170008	6/17/02	MG	Acushnet park looking W to the mudflats on W shoreline.
WS102101	10/21/02	JPK	Lumberyard area during mobilization
WS102102	10/21/02	JPK	Lumberyard area during mobilization
WS102103	10/21/02	JPK	Clearing trees and brush for fence installation.
WS102401	10/24/02	JPK	Mobilization of Maxymillian site trailers.
WS102402	10/24/02	JPK	Installation of fencing at the lumberyard area.
WS102501	10/25/02	JPK	Delivery of stone to the Lumberyard staging area.
WS102502	10/25/02	JPK	Future (general) location of Northern Berm.
WS103001	10/30/02	JPK	Post-clearing conditions north of the Titleist parking lot.
WS103002	10/30/02	JPK	Post-clearing conditions north of the Titleist parking lot.
WS103003	10/30/02	JPK	Perimeter fencing along River Rd (east of Titleist lot).
WS103004	10/30/02	JPK	Existing pavement conditions at Titleist lot/River Rd.
WS103005	10/30/02	JPK	Clearing for truck access at corner of Wood St/River Rd.

PHOTO #	DATE	TAKEN BY	PHOTO DESCRIPTION
WS110501	11/5/02	JPK	Excavation for electrical conduit installation.
WS110502	11/5/02	JPK	Excavation for electrical conduit installation.
WS110503	11/5/02	JPK	North Zone sediment excavation.
WS110504	11/5/02	JPK	North Zone sediment excavation.
WS110505	11/5/02	JPK	North Zone sediment excavation.
WS110506	11/5/02	JPK	North Zone sediment excavation.
WS110701	11/7/02	JPK	Installation of electrical conduit.
WS110702	11/7/02	JPK	Installation of electrical conduit- concrete placement.
WS110703	11/7/02	JPK	Box culvert for North Berm channel.
WS111401	11/14/02	JPK	Water-tight containers for material transport.
WS111402	11/14/02	JPK	Delivery of HDPE to NWS project site.
WS111501	11/15/02	JPK	Maxymillian's environmental bucket on Kobelco long reach.
WS111502	11/15/02	JPK	Maxymillian's environmental bucket on Kobelco long reach.
WS111503	11/15/02	JPK	Decon. tracking pad at South Berm area.
WS111901	11/19/02	JPK	Construction of the North Berm.
WS111902	11/19/02	JPK	Construction of the North Berm.
WS111903	11/19/02	JPK	Placement of excavated sediment in the DDA.
WS112001	11/20/02	JPK	Setting box culvert for North Berm channel.
WS112002	11/20/02	JPK	Setting box culvert for North Berm channel.
WS112003	11/20/02	JPK	Hoisting box culvert section with crane.
WS112004	11/20/02	JPK	Hoisting box culvert section with crane.
WS112005	11/20/02	JPK	Hoisting box culvert section with crane.
WS112006	11/20/02	JPK	Setting box culvert for North Berm channel.
WS112007	11/20/02	JPK	Setting box culvert for North Berm channel.
WS112008	11/20/02	JPK	Box culvert for North Berm channel in place.
WS112009	11/20/02	JPK	Box culvert for North Berm channel in place.
WS112101	11/21/02	JPK	North Berm during construction.
WS112102	11/21/02	JPK	Butt-fusion welding of HDPE pipe.
WS112103	11/21/02	JPK	Confirmatory sampling with push-tube.
WS120201	12/2/02	JPK	Construction of the South Berm.
WS120202	12/2/02	JPK	Construction of the South Berm / HDPE piping.
WS120203	12/2/02	JPK	HDPE piping for pump around system.
WS120301	12/3/02	JPK	Setting "U" channel for the South Berm.
WS120302	12/3/02	JPK	Setting "U" channel for the South Berm.
WS120303	12/3/02	JPK	Setting "U" channel for the South Berm.
WS120304	12/3/02	JPK	HDPE piping for pump around system.
WS120601	12/6/02	JPK	North Berm during by-pass pumping set-up.
WS120902	12/9/02	JPK	Construction of South Berm / sediment sampling.
WS121101	12/11/02	JPK	Construction of South Berm.
WS121102	12/11/02	JPK	Set-up of by-pass pumping system at North Berm.
WS121103	12/11/02	JPK	Set-up of by-pass pumping system at North Berm.
WS121201	12/12/02	JPK	Placement of flowable fill at S. Berm tie-in to east shore.
WS121301	12/13/02	JPK	Placement of stone protection on South Berm.
WS121302	12/13/02	JPK	Positioning of turbidity barrier downstream of South Berm.
WS121303	12/13/02	JPK	By-pass pumping system at North Berm.
WS121601	12/16/02	JPK	North Berm box culvert with steel wier plate in place.
WS121702	12/17/02	JPK	Placement of stone protection on the South Berm.
WS121801	12/18/02	JPK	Staged material at CSO excavation.
WS122301	12/23/02	JPK	New 20-in. pumps for N. Berm by-pass system.
WS122302	12/23/02	JPK	Old 12-in. pumps from N. Berm by-pass system.
WS122303	12/23/02	JPK	CSO Zone - excavation in progress.

PHOTO #	DATE	TAKEN BY	PHOTO DESCRIPTION
WS122304	12/23/02	JPK	Access road construction along Western shoreline.
WS122401	12/24/02	JPK	Newly placed sidewalk/curb by Northern at Wood St.
WS122402	12/24/02	JPK	Existing cracks in sidewalk/curb.
WS122403	12/24/02	JPK	Existing cracks in sidewalk/curb.
WS122404	12/24/02	JPK	Existing cracks in sidewalk/curb.
WS122405	12/24/02	JPK	Existing cracks in sidewalk/curb.
WS122406	12/24/02	JPK	Conditions at Substation access prior to construction traffic.
WS122407	12/24/02	JPK	Conditions at Substation access prior to construction traffic.
WS122408	12/24/02	JPK	Conditions at Substation access prior to construction traffic.
WS122409	12/24/02	JPK	Materials left at Titleist lot by Northern Construction.
WS122410	12/24/02	JPK	S. Berm with dewatering pumping system in place.
WS122701	12/27/02	JPK	Access road construction/mat placement along Western shoreline.
WS122702	12/27/02	JPK	S. Berm with dewatering pumping system in place.
WS122801	12/28/02	JPK	New 20-in. pumps for N. Berm by-pass system.
WS122802	12/28/02	JPK	New 20-in. pumps for N. Berm by-pass system.
WS123001	12/30/02	JPK	Access road construction/mat placement along Western shoreline.
WS123002	12/30/02	JPK	Access road construction/mat placement along Western shoreline.
WS1203	1/2/03	JPK	View of N. Berm from the South after wier plate installation.
WS1601	1/6/03	JPK	Access road across CSO channel.
WS1602	1/6/03	JPK	Excavation at CSO zone.
WS1801	1/8/03	JPK	Excavation at CSO zone.
WS1802	1/8/03	JPK	Excavation at CSO zone.
WS1804	1/8/03	JPK	Temporary relocation of the Braley dock.
WS1805	1/8/03	JPK	Excavation at CSO zone/side slopes.
WS1806	1/8/03	JPK	Excavation in river channel at Lumber Yard zone.
WS1901	1/9/03	JPK	Assembly of MT's CAT 245 80-ft. long stick excavator.
WS1902	1/9/03	JPK	Excavation in river channel at Lumber Yard zone.
WS1903	1/9/03	JPK	Load-out of sediments into trucks for transport to DDA.
WS1904	1/9/03	JPK	Acushnet River dewatered: Looking North from bridge.
WS1905	1/9/03	JPK	Acushnet River dewatered: Looking South from bridge.
WS11301	1/13/03	JPK	In-river excavation at Lumberyard zone.
WS11302	1/13/03	JPK	Transportation/Disposal of excavated sediments at DDA.
WS11303	1/13/03	JPK	Placement/compaction of excavated sediments at DDA.
WS11304	1/13/03	JPK	Decontamination of haul vehicle at DDA.
WS11305	1/13/03	JPK	In-river excavation at Lumberyard/CSO zone.
WS11306	1/13/03	JPK	In-river excavation at Lumberyard/CSO zone.
WS11501	1/15/03	JPK	Completed excavation at the CSO outfall area.
WS11502	1/15/03	JPK	In-river excavation at the CSO/mudflat zone.
WS11503	1/15/03	JPK	Field crew conducting confirmatory sediment sampling.
WS11504	1/15/03	JPK	Load-out of sediments into MT haul truck for transport to DDA.
WS11701	1/17/03	JPK	In-river excavation and sediment load-out operations.
WS12001	1/20/03	JPK	In-river excavation at mudflat zone.
WS12002	1/20/03	JPK	In-river excavation at mudflat zone.
WS12003	1/20/03	JPK	View of S. Berm from Wood St. bridge.
WS12101	1/21/03	JPK	In-river excavation at mudflat zone.
WS12102	1/21/03	JPK	Load-out of vegetative material for off-site transport/disposal.
WS12103	1/21/03	JPK	Post-excavation conditions at Lumberyard zone.
WS12104	1/21/03	JPK	Load-out of sediments into haul truck for transport to DDA.
WS12105	1/21/03	JPK	Excavation activities at mudflat zone.
WS12106	1/21/03	JPK	Post-excavation conditions E. shoreline north of Titleist lot.
WS12107	1/21/03	JPK	Screening operations at DDA/Cell 1.

PHOTO #	DATE	TAKEN BY	PHOTO DESCRIPTION
WS12108	1/21/03	JPK	Screening operations at DDA/Cell 1.
WS12301	1/23/03	JPK	Excavation activities at mudflat zone.
WS12302	1/23/03	JPK	Excavation activities at mudflat zone.
WS12303	1/23/03	JPK	Required cuts marked out for operator.
WS12304	1/23/03	JPK	Excavation at the South zone.
WS12305	1/23/03	JPK	Excavation activities at mudflat zone.
WS12401	1/24/03	JPK	Cylinder discovered during excavation.
WS12402	1/24/03	JPK	Cylinder discovered during excavation.
WS12403	1/24/03	JPK	Cylinder discovered during excavation.
WS12701	1/27/03	JPK	In-river excavation/sediment load-out at mudflat zone.
WS12901	1/29/03	JPK	Excavation in South zone near Titleist (East shore).
WS12902	1/29/03	JPK	Sediment load-out operations at Mudflat zone.
WS12903	1/29/03	JPK	Management of material at the DDA.
WS13001	1/30/03	JPK	Investigation of unknown cylinder by Onyx Environmental.
WS13002	1/30/03	JPK	Investigation of unknown cylinder by Onyx Environmental.
WS13003	1/30/03	JPK	Investigation of unknown cylinder by Onyx Environmental.
WS13004	1/30/03	JPK	Investigation of unknown cylinder by Onyx Environmental.
WS13005	1/30/03	JPK	Investigation of unknown cylinder by Onyx Environmental.
WS2301	2/3/03	JPK	Excavation at the South zone.
WS2302	2/3/03	JPK	Excavation at the South zone.
WS2303	2/3/03	JPK	Excavation on the east shore near Acushnet park.
WS2502	2/5/03	JPK	Excavation on the east shore near Titleist lot.
WS2503	2/5/03	JPK	Removal of West haul road.
WS21001	2/10/03	JPK	Excavation in Lumberyard zone (in-river).
WS21002	2/10/03	JPK	Load-out of vegetative material for off-site transport/disposal.
WS21003	2/10/03	JPK	Transfer of excavated material with off-road trucks.
WS21101	2/11/03	JPK	Excavation activities in the South zone.
WS21102	2/11/03	JPK	Excavation activities in the South zone.
WS21103	2/11/03	JPK	Load-out of excavated material in the South zone.
WS21104	2/11/03	JPK	Excavation activities in the South zone.
WS21301	2/13/03	JPK	Santos shed- pre-excavation conditions.
WS21302	2/13/03	JPK	Santos shed- pre-excavation conditions.
WS21303	2/13/03	JPK	Santos shed- pre-excavation conditions.
WS21304	2/13/03	JPK	Santos shed- pre-excavation conditions.
WS21305	2/13/03	JPK	Santos shed- pre-excavation conditions.
WS21306	2/13/03	JPK	Excavation/removal of the West haul road.
WS21307	2/13/03	JPK	Santos shed- pre-excavation conditions.
WS21401	2/14/03	JPK	Delivery of coir fascines.
WS21402	2/14/03	JPK	Excavation/removal of the West haul road.
WS22001	2/20/03	JPK	MT haul truck #166.
WS22002	2/20/03	JPK	MT haul truck #166.
WS22003	2/20/03	JPK	MT haul truck #166.
WS22004	2/20/03	JPK	MT haul truck #166.
WS22005	2/20/03	JPK	Material management at the DDA.
WS22006	2/20/03	JPK	Screening/slurry operations.
WS22007	2/20/03	JPK	Screening/slurry operations.
WS22008	2/20/03	JPK	Slurry pipeline discharge in Cell #1.
WS22101	2/21/03	JPK	Removal of West haul road.
WS22102	2/21/03	JPK	Excavation around the Santos shed/ W. haul road.
WS22103	2/21/03	JPK	Stockpile of vegetative material awaiting removal.
WS22104	2/21/03	JPK	Post-excavation conditions at the South zone.

PHOTO #	DATE	TAKEN BY	PHOTO DESCRIPTION
WS22501	2/25/03	JPK	Conditions after berms opened due to heavy rain.
WS22502	2/25/03	JPK	Conditions after berms opened due to heavy rain.
WS30101	3/1/03	JF	By-pass pumping system at North berm.
WS30102	3/1/03	JF	View downstream from N. berm- restoration underway.
WS30103	3/1/03	JF	Restoration work at CSO/mudflat zone (W. shore).
WS30104	3/1/03	JF	Restoration work at CSO zone.
WS30105	3/1/03	JF	Restoration work at Lumberyard zone (W. shore).
WS30106	3/1/03	JF	Restoration work at Lumberyard zone (W. shore).
WS30802	3/8/03	JF	Backfill placement at the mudflat zone.
WS30803	3/8/03	JF	Coir fascine installation at the Lumberyard zone.
WS30804	3/8/03	JF	Coir fascine installation at the Lumberyard zone.
WS30805	3/8/03	JF	Placement of stone protection at the CSO outlet.
WS31101	3/11/03	JPK	Stone toe/topsoil placement at the Lumberyard zone.
WS31102	3/11/03	JPK	Coir fascine close-up.
WS31103	3/11/03	JPK	Topsoil grading and compaction at the Lumberyard zone.
WS31104	3/11/03	JPK	Topsoil grading at the CSO/mudflat zone.
WS31105	3/11/03	JPK	Installation of coir fascine.
WS31201	3/12/03	JPK	Restoration activities on the Western shoreline.
WS31202	3/12/03	JPK	Stone protection/backfill placement on Western shoreline.
WS31203	3/12/03	JPK	Backfill placement north of Titleist zone.
WS31204	3/12/03	JPK	Stone toe placement on Eastern shoreline.
WS31205	3/12/03	JPK	Installation of erosion control blanket at Lumberyard zone.
WS31206	3/12/03	JPK	Installation of erosion control blanket at Lumberyard zone.
WS31207	3/12/03	JPK	Restoration of Eastern shoreline at Acushnet park.
WS31301	3/13/03	JPK	Restoration work underway on the Eastern shoreline.
WS31302	3/13/03	JPK	Restoration work underway on the Eastern shoreline.
WS31303	3/13/03	JPK	W. Shoreline: Post topsoil placement conditions.
WS31304	3/13/03	JPK	W. Shoreline: Post topsoil placement conditions.
WS31305	3/13/03	JPK	Restoration of Western shoreline.
WS31306	3/13/03	JPK	Placement of stone protection at the CSO outlet.
WS31401	3/14/03	JPK	Restoration of South zone- Eastern shoreline.
WS31402	3/14/03	JPK	Restoration of South zone- Eastern shoreline.
WS31403	3/14/03	JPK	Restoration of Eastern shoreline N. of Titleist lot.
WS31501	3/15/03	JPK	Opening of the South berm channel.
WS31502	3/15/03	JPK	Restoration of Eastern shoreline N. of Titleist lot.
WS31503	3/15/03	JPK	Post-restoration conditions: South zone, Western shoreline.
WS31504	3/15/03	JPK	Restoration North of the Wood St. bridge.
WS31801	3/18/03	JPK	River flowing through the N. berm culvert.
WS31802	3/18/03	JPK	Drainage swale at S. end of Braley property.
WS31803	3/18/03	JPK	Restoration activities at the CSO zone.
WS31804	3/18/03	JPK	Restoration activities at the CSO zone.
WS31805	3/18/03	JPK	Restoration activities at the CSO zone.
WS31901	3/19/03	JPK	Demobilization of MT equipment from Lumberyard.
WS31902	3/19/03	JPK	Restoration of the CSO zone.
WS31903	3/19/03	JPK	Restored conditions. Note: Water elevation = -0.5 ft.
WS31904	3/19/03	JPK	Restored conditions. Note: Water elevation = -0.5 ft.
WS31905	3/19/03	JPK	Restored conditions. Note: Water elevation = -0.5 ft.
WS31906	3/19/03	JPK	Restored conditions. Note: Water elevation = -0.5 ft.
WS31907	3/19/03	JPK	Restored conditions. Note: Water elevation = -0.5 ft.
WS31908	3/19/03	JPK	Restored conditions. Note: Water elevation = -0.5 ft.
WS32001	3/20/03	JPK	Restored conditions. Note: Water elevation = 1.7 ft.

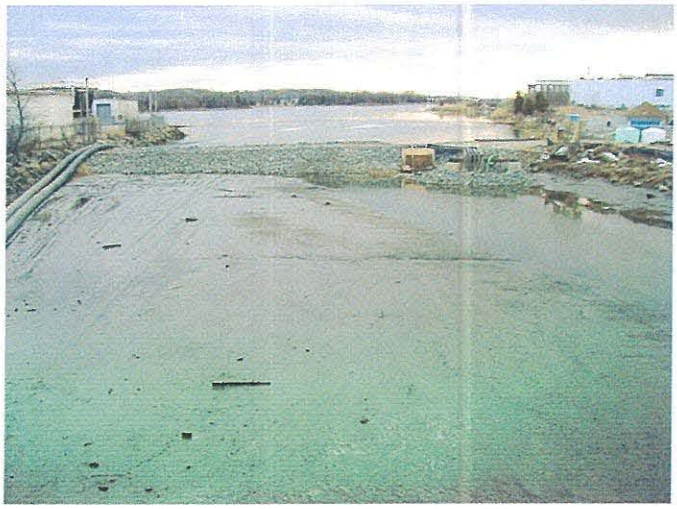
PHOTO #	DATE	TAKEN BY	PHOTO DESCRIPTION
WS32002	3/20/03	JPK	Restored conditions. Note: Water elevation = 1.7 ft.
WS32003	3/20/03	JPK	Restored conditions. Note: Water elevation = 1.7 ft.
WS32004	3/20/03	JPK	Restored conditions. Note: Water elevation = 1.7 ft.
WS32005	3/20/03	JPK	Removal of the by-pass piping from river.
WS32006	3/20/03	JPK	Restored conditions. Note: Water elevation = 1.7 ft.
WS32007	3/20/03	JPK	Removal of the by-pass piping from river.
WS32008	3/20/03	JPK	Restoration activities at the CSO zone.
WS32401	3/24/03	JPK	Site conditions following removal of the North berm.
WS32402	3/24/03	JPK	MT employees securing the coir logs.
WS32501	3/25/03	JPK	Excavation of the Santos' garden.
WS32502	3/25/03	JPK	Excavation of the Santos' garden.
WS32701	3/27/03	JPK	Restored slope at the Lumberyard zone (West shore).
WS32702	3/27/03	JPK	Braley dock re-installed.
WS32703	3/27/03	JPK	Trash/debris at Lumberyard. To be removed by MT.
WS32704	3/27/03	JPK	Santos' garden: backfilled with topsoil.
WS40101	4/1/03	JPK	CSO outlet near high tide.
WS40102	4/1/03	JPK	CSO outlet near high tide.
WS40103	4/1/03	JPK	Santos' shed- post remediation conditions.
WS40701	4/7/03	JPK	Construction of drainage swale North of Titleist lot.
WS40901	4/9/03	JPK	Drainage swale on W.shore- north of bridge.
WS40902	4/9/03	JPK	Construction of drainage swale north of bridge/lot grading.
WS40903	4/9/03	JPK	Construction of drainage swale north of bridge/lot grading.
WS40904	4/9/03	JPK	Drainage swale north of the Titleist parking lot.
WS41401	4/14/03	JPK	Installation of drainage swale at Lumberyard.
WS41501	4/15/03	JPK	Installation of drainage swale/final grading at Lumberyard.
WS41502	4/15/03	JPK	Installation of drainage swale/final grading at Lumberyard.
WS41601	4/16/03	JPK	Drainage swale / stone protection at Wood St. access.
WS41602	4/16/03	JPK	Drainage swale construction behind residences (W. shore).
WS41701	4/17/03	JPK	Stone protection at the Lumberyard.
WS42501	4/25/03	JPK	Drainage swale / restored slope at Lumberyard.
WS42502	4/25/03	JPK	Restored slope at Lumberyard.
WS42503	4/25/03	JPK	Drainage swale on W.shore- behind residences.
WS42504	4/25/03	JPK	Restored conditions at Doctor's lot.
WS42901	4/29/03	JPK	MT Grading the Debris Disposal Area (DDA).
WS42902	4/29/03	JPK	MT Grading the Debris Disposal Area (DDA).
WS42903	4/29/03	JPK	MT Grading the Debris Disposal Area (DDA).
WS51601	5/16/03	JPK	Installation of fencing at South Berm.
WS51602	5/16/03	JPK	Installation of fencing at South Berm.
WS61101	6/11/03	AC	Wetlands plants south of Wood St. bridge - eastern shoreline
WS61102	6/11/03	AC	Wetlands plants north of Wood St. bridge west bank-facing south
WS61103	6/11/03	AC	Wetlands plants north of Wood St. bridge west bank-facing north
WS61104	6/11/03	AC	Planting tool
WS61105	6/11/03	AC	Planting tool
WS61106	6/11/03	AC	Planting upper marsh plants
WS61107	6/11/03	AC	Upper marsh plants delivered to site
WS61108	6/11/03	AC	CSO area south
WS61109	6/11/03	AC	Fallen tree on fence at CSO
WS61110	6/11/03	AC	West bank looking south at CSO
WS61112	6/11/03	AC	Goose in plantings
WS61113	6/11/03	AC	Wetland planting lumberyard area
WS61114	6/11/03	AC	Northern limit of planting on west bank

PHOTO #	DATE	TAKEN BY	PHOTO DESCRIPTION
WS62001	6/20/03	AC	New planting near Lumber Yard Zone
WS62002	6/20/03	AC	East bank near Acushnet Park
WS62003	6/20/03	AC	Future shrub placement near Acushnet Park
WS62004	6/20/03	AC	Future shrub placement near Acushnet Park
WS62005	6/20/03	AC	Goose fencing
WS62006	6/20/03	AC	Goose fencing and deterant
WS62007	6/20/03	AC	Phase II restoration facing south
WS62008	6/20/03	AC	CSO Area facing south
WS62401	6/24/03	AC	South berm removal
WS62403	6/24/03	AC	South berm removal
WS62404	6/24/03	AC	cleaning rip rap wall at south berm
WS62405	6/24/03	AC	cleaning rip rap wall at south berm
WS62406	6/24/03	AC	South berm removal
WS62501	6/25/03	JF	U-channel loaded on Town of Acushnet trucks
WS62502	6/25/03	JF	East bank at Titliest
WS62503	6/25/03	JF	Cleaning out U-channel
WS090801	9/8/03	JF	Looking north and into CSO area from bridge
WS090802	9/8/03	JF	Looking towards Acushnet (east) from bridge
WS090803	9/8/03	JF	Looking north from bridge
WS090804	9/8/03	JF	Southeast side near Titleist from bridge
WS090805	9/8/03	JF	North from Titleist parking area
WS090806	9/8/03	JF	West behind residence from Titleist parking area
NWS121201	12/12/03	MS	Removal of HDPE mats south of the excavation at Acushnet Park
NWS121202	12/12/03	MS	Removal of HDPE mats south of the excavation at Acushnet Park
NWS121203	12/12/03	MS	Restoration of the excavation at the Acushnet Park
NWS121204	12/12/03	MS	Restoration of the excavation at the Acushnet Park
NWS121205	12/12/03	MS	Area south of excavation at Acushnet Park after HDPE mats were removed
NWS121206	12/12/03	MS	Area south of excavation at Acushnet Park after HDPE mats were removed

NORTH OF WOOD ST REMEDIATION

Load-out of sediments into trucks for transport to DDA
Photo # WS1903
1/9/03
JPK

Acushnet River dewatered: Looking north from bridge
Photo # WS1904
1/9/03
JPK



Acushnet River dewatered: Looking south from bridge
Photo # WS1905
1/9/03
JPK

In-river excavation at lumber yard zone
Photo # WS11301
1/13/03
JPK

NORTH OF WOOD ST REMEDIATION

Transportation/disposal of excavated sediments at DDA
Photo # WS11302
1/13/03
JPK

Placement/compaction of excavated sediments at DDA
Photo # WS11303
1/13/03
JPK

Decontamination of haul vehicle at DDA
Photo # WS11304
1/13/03
JPK

In-river excavation at lumber yard/CSO zone
Photo # WS11305
1/13/03
JPK

NORTH OF WOOD ST REMEDIATION

In-river excavation at lumber yard/CSO zone
Photo # WS11306
1/13/03
JPK

Completed excavation at the CSO outfall area
Photo # WS11501
1/15/03
JPK

In-river excavation at the CSO/mudflat zone
Photo # WS11502
1/15/03
JPK

Field crew conducting conducting confirmatory sediment sampling
Photo # WS11503
1/15/03
JPK

NORTH OF WOOD ST REMEDIATION

Load-out of sediments into MT haul truck for transport to DDA
Photo # WS11504
1/15/03
JPK

In-river excavation and sediment load-out operations
Photo # WS11701
1/17/03
JPK

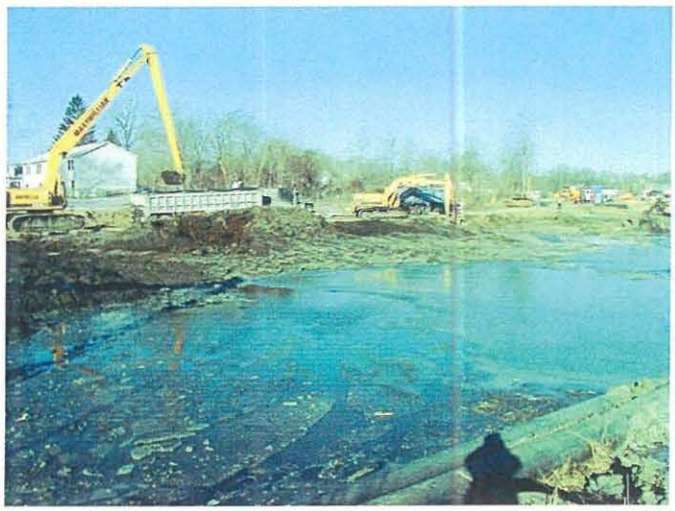
In-river excavation at mudflat zone
Photo # WS12001
1/20/03
JPK

In-river excavation at mudflat zone
Photo # WS12002
1/20/03
JPK

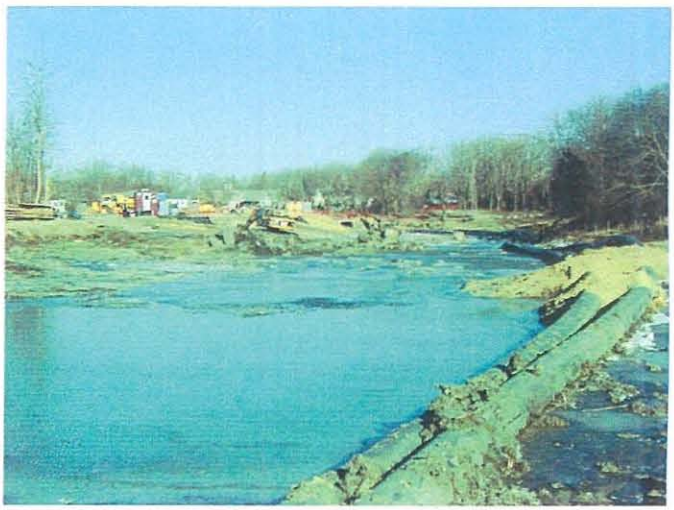
NORTH OF WOOD ST REMEDIATION

View of south berm from Wood St. bridge
Photo # WS12003
1/20/03
JPK

In-river excavation at mudflat zone
Photo # WS12103
1/21/03
JPK



Load-out of vegetation material for off-site transport/disposal
Photo # WS12102
1/21/03
JPK



Post-excavation conditions at lumber yard zone
Photo # WS12103
1/21/03
JPK

NORTH OF WOOD ST REMEDIATION

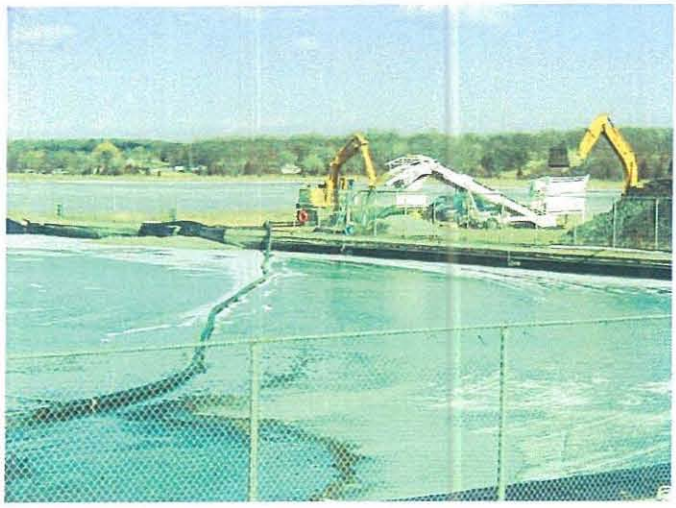
Load-out of sediments into haul truck for transport to DDA
Photo # WS12104
1/21/03
JPK

Excavation activities at mudflat zone
Photo # WS12105
1/21/03
JPK

Post-excavation conditions east shoreline north of Titleist lot
Photo # WS12106
1/21/03
JPK

Screening operations at DDA/Cell 1
Photo # WS12107
1/21/03
JPK

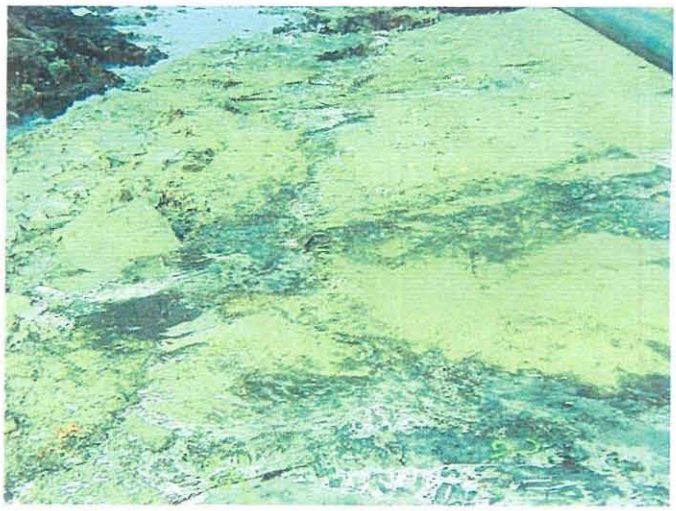
NORTH OF WOOD ST REMEDIATION



Screening operations at DDA/Cell 1
Photo # WS12108
1/21/03
JPK

Excavation activities at mudflat zone
Photo # WS12301
1/23/03
JPK

Excavation activities in mudflat zone
Photo # WS12302
1/23/03
JPK



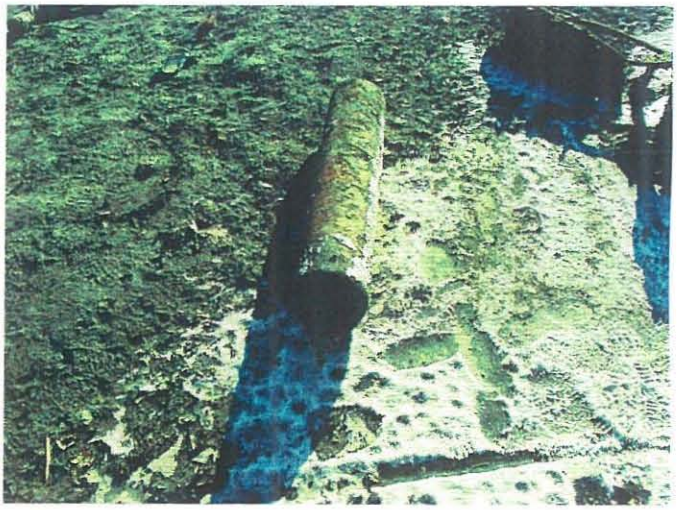
Required cuts marked out for operator
Photo # WS12303
1/23/03
JPK

NORTH OF WOOD ST REMEDIATION

Excavation at the south zone
Photo # WS12304
1/23/03
JPK

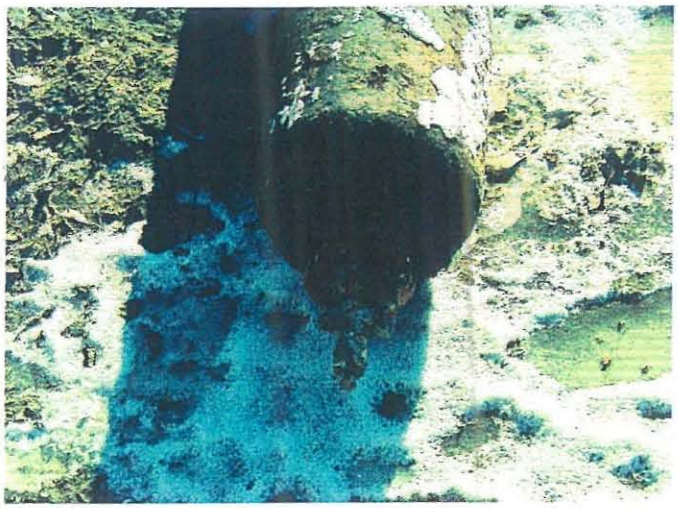
Excavation activities at mudflat zone
Photo # WS12305
1/23/03
JPK

Cylinder discovered during excavation
Photo # WS12401
1/24/03
JPK

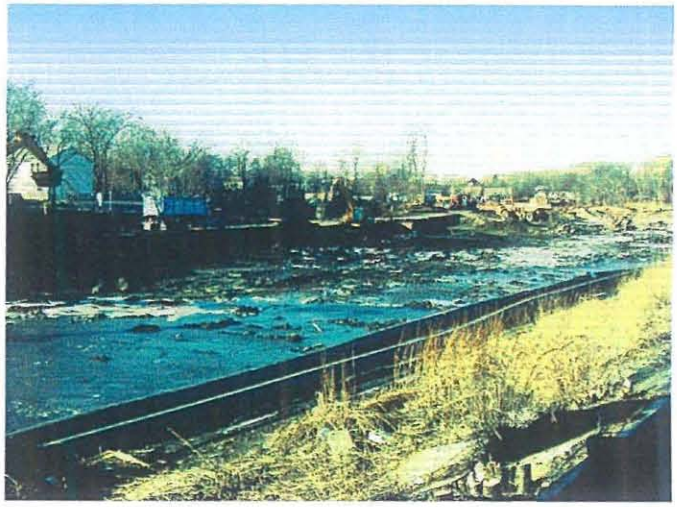


Cylinder discovered during excavation
Photo # WS12402
1/24/03
JPK

NORTH OF WOOD ST REMEDIATION



Cylinder discovered during excavation
Photo # WS12403
1/24/03
JPK



In-river excavation/sediment load-out at mudflat zone
Photo # WS12701
1/27/03
JPK

Excavation in south zone near Titleist (east shore)
Photo # WS12901
1/29/03
JPK

Sediment load-out operations at mudflat zone
Photo # WS12902
1/29/03
JPK

NORTH OF WOOD ST REMEDIATION

Management of material at the DDA
Photo # WS12903
1/29/03
JPK

Investigation of unknown cylinder by Onyx Environmental
Photo # WS13001
1/30/03
JPK

Investigation of unknown cylinder by Onyx Environmental
Photo # WS13002
1/30/03
JPK

Investigation of unknown cylinder by Onyx Environmental
Photo # WS13003
1/30/03
JPK

NORTH OF WOOD ST REMEDIATION

Investigation of unknown cylinder by Onyx Environmental
Photo # WS13004
1/30/03
JPK

Investigation of unknown cylinder by Onyx Environmental
Photo # WS13005
1/30/03
JPK

Excavation of the South Zone
Photo # WS2301
2/3/03
JPK

Excavation of the South Zone
Photo # WS2302
2/3/03
JPK

NORTH OF WOOD ST REMEDIATION

Excavation on the east shore near Acushnet Park
Photo # WS2303
2/3/03
JPK

Excavation on the east shore near Titleist lot
Photo # WS2502
2/5/03
JPK

Removal of West haul road
Photo # WS2503
2/5/03
JPK

Excavation in lumberyard zone (in-river)
Photo # WS21001
2/10/03
JPK

NORTH OF WOOD ST REMEDIATION

Load-out of vegetative material with off-road trucks
Photo # WS21002
2/10/03
JPK

Transfer of excavated material with off-road trucks
Photo # WS21003
2/10/03
JPK

Excavation activities in the south zone
Photo # WS21101
2/11/03
JPK

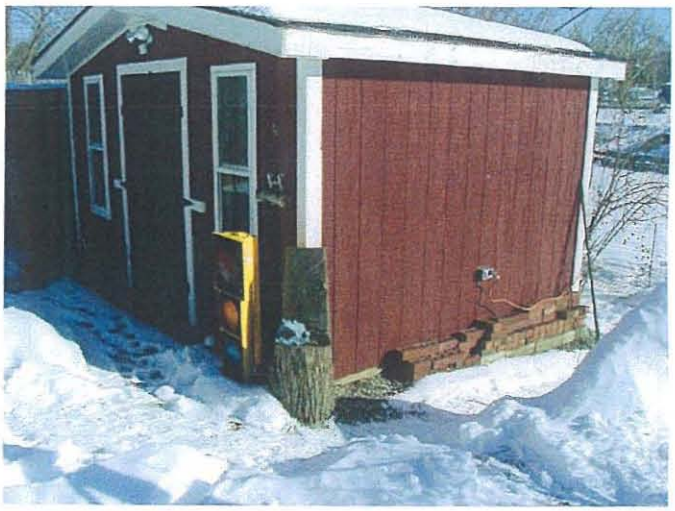
Excavation activities in the south zone
Photo # WS21102
2/11/03
JPK

NORTH OF WOOD ST REMEDIATION

Load out of excavated material in the south zone
Photo # WS21103
2/11/03
JPK

Excavation activities in the south zone
Photo # WS21104
2/11/03
JPK

Santos shed – pre-excavation conditions
Photo # WS21301
2/13/03
JPK

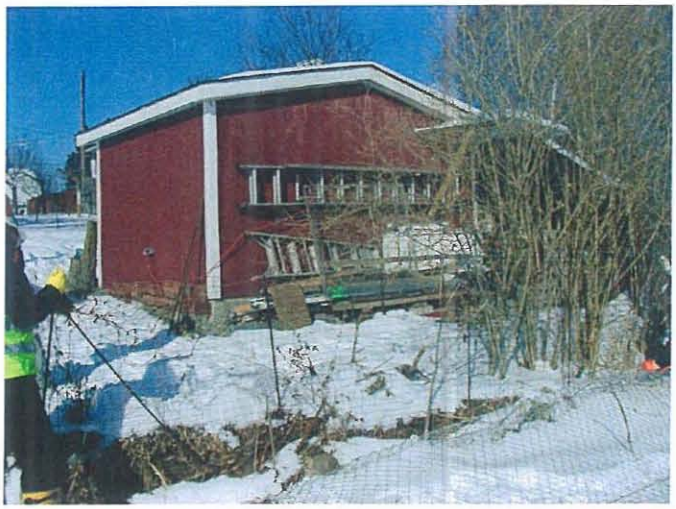


Santos shed – pre-excavation conditions
Photo # WS21302
2/13/03
JPK

NORTH OF WOOD ST REMEDIATION

Santos shed – pre-excavation conditions
Photo # WS21303
2/13/03
JPK

Santos shed – pre-excavation conditions
Photo # WS21304
2/13/03
JPK



Santos shed – pre-excavation conditions
Photo # WS21305
2/13/03
JPK

Excavation/removal of the West haul road
Photo # WS21306
2/13/03
JPK

NORTH OF WOOD ST REMEDIATION

Santos shed – pre-excavation conditions
Photo # WS21307
2/13/03
JPK

Delivery of coir fascines
Photo # WS21401
2/14/03
JPK

Excavation/removal of West haul road
Photo # WS21402
2/14/03
JPK

MT haul truck #166
Photo # WS22001
2/20/03
JPK

NORTH OF WOOD ST REMEDIATION

MT haul truck #166
Photo # WS22002
2/20/03
JPK

MT haul truck #166
Photo # WS22003
2/20/03
JPK

MT haul truck #166
Photo # WS22004
2/20/03
JPK

Material management at the DDA
Photo # WS22005
2/20/03
JPK

NORTH OF WOOD ST REMEDIATION

Screening/slurry operations
Photo # WS22006
2/20/03
JPK

Screening/slurry operations
Photo # WS22007
2/20/03
JPK

Slurry pipeline discharge in Cell #1
Photo # WS22008
2/20/03
JPK

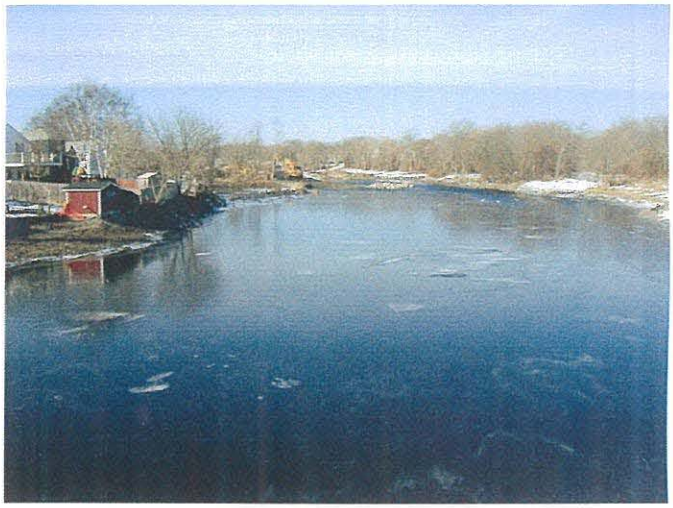
Removal of West haul road
Photo # WS22101
2/21/03
JPK

NORTH OF WOOD ST REMEDIATION

Excavation around the Santos shed/W. haul road
Photo # WS22102
2/21/03
JPK

Stockpile of vegetative material awaiting removal
Photo # WS22103
2/21/03
JPK

Post-excavation conditions at the south zone
Photo # WS22104
2/21/03
JPK



Conditions after berms opened due to heavy rain
Photo # WS22501
2/25/03
JPK

NORTH OF WOOD ST REMEDIATION

Conditions after berms opened due to heavy rain
Photo # WS22502
2/25/03
JPK

By-pass pumping system at North berm
Photo # WS30101
3/01/03
JPK

View downstream from N. berm-restoration underway
Photo # WS30102
3/01/03
JPK

Restoration work at CSO/mudflat zone (W. shore)
Photo # WS30103
3/01/03
JPK

NORTH OF WOOD ST REMEDIATION

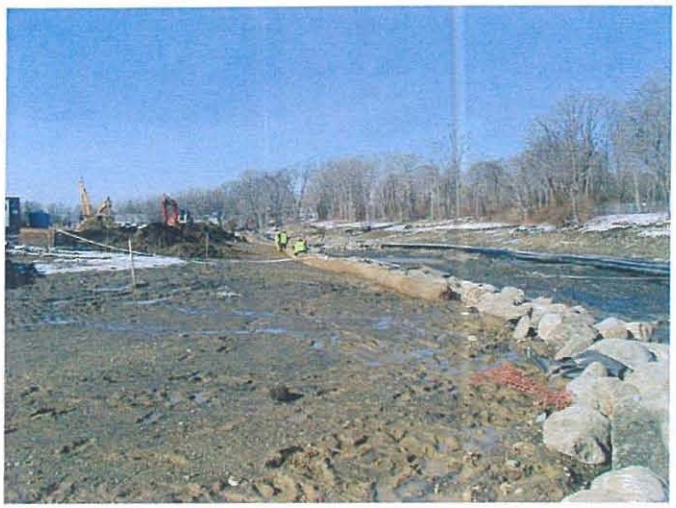
Restoration work at CSO zone
Photo # WS30104
3/01/03
JPK

Restoration work at Lumberyard zone (W. shore)
Photo # WS30105
3/01/03
JPK

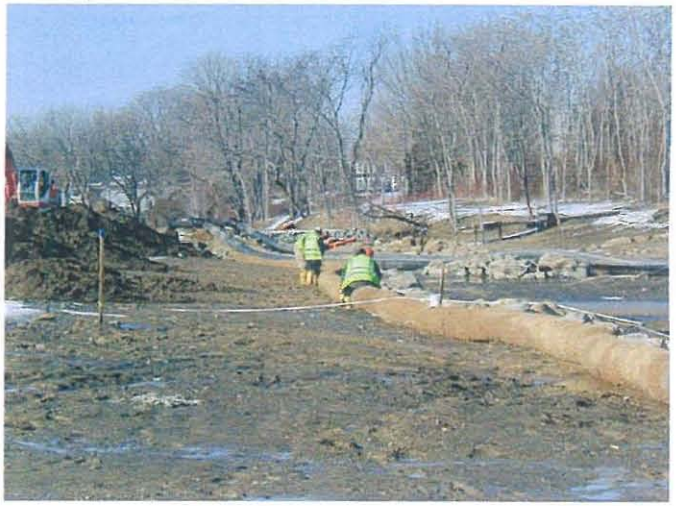
Restoration work at Lumberyard zone (W. shore)
Photo # WS30106
3/01/03
JPK

Backfill placement at the mudflat zone
Photo # WS30802
3/08/03
JPK

NORTH OF WOOD ST REMEDIATION



Coir fascine installation at the lumberyard zone
Photo # WS30803
3/8/03
JPK



Coir fascine installation at the lumberyard zone
Photo # WS30804
3/8/03
JPK

Placement of stone protection at the CSO outlet
Photo # WS30805
3/8/02
JPK

Stone toe/topsoil placement at the lumberyard zone
Photo # WS31101
3/11/03
JPK

NORTH OF WOOD ST REMEDIATION

Coir fascine close-up
Photo # WS31102
3/11/03
JPK

Topsoil grading and compaction at the lumberyard zone
Photo # WS31103
3/11/03
JPK

Topsoil grading at the CSO/mudflat zone
Photo # WS31104
3/11/02
JPK

Installation of coir fascine
Photo # WS31105
3/11/03
JPK

NORTH OF WOOD ST REMEDIATION

Restoration activities on the western shoreline
Photo # WS31201
3/12/03
JPK

Stone protection/backfill placement on western shoreline
Photo # WS31202
3/12/03
JPK

Backfill placement north of Titleist zone
Photo # WS31203
3/12/02
JPK

Stone toe placement on eastern shoreline
Photo # WS31204
3/12/03
JPK

NORTH OF WOOD ST REMEDIATION

Installation of erosion control blanket at lumberyard zone
Photo # WS31205
3/12/03
JPK

Installation of erosion control blanket at lumberyard zone
Photo # WS31206
3/12/03
JPK

Restoration of eastern shoreline at Acushnet park
Photo # WS31207
3/12/02
JPK

Restoration work underway on the eastern shoreline
Photo # WS31301
3/13/03
JPK

NORTH OF WOOD ST REMEDIATION

Restoration work underway on the eastern shoreline
Photo # WS31302
3/13/03
JPK

West shoreline: Post topsoil placement conditions
Photo # WS31303
3/13/03
JPK

West shoreline: Post topsoil placement conditions
Photo # WS3104
3/13/03
JPK

Restoration of western shoreline
Photo # WS31305
3/13/03
JPK

NORTH OF WOOD ST REMEDIATION

Placement of stone protection at the CSO outlet
Photo # WS31306
3/13/03
JPK

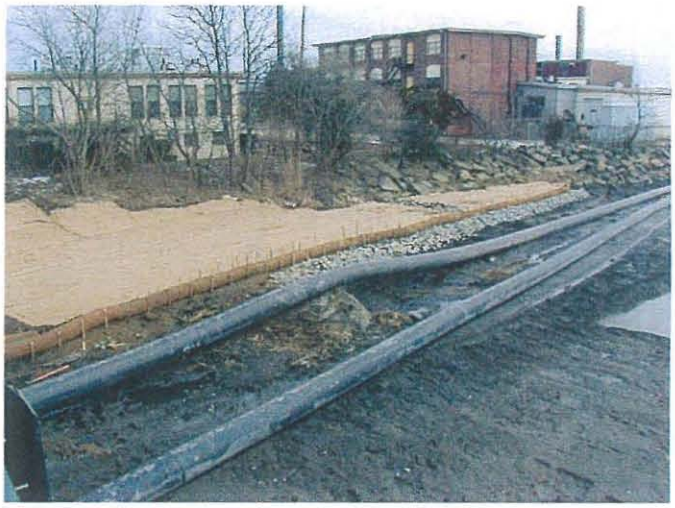
Restoration of south zone - eastern shoreline
Photo # WS31401
3/14/03
JPK

Restoration of south zone - eastern shoreline
Photo # WS31402
3/14/03
JPK

Restoration of eastern shoreline north of Titleist lot
Photo # WS31403
3/14/03
JPK

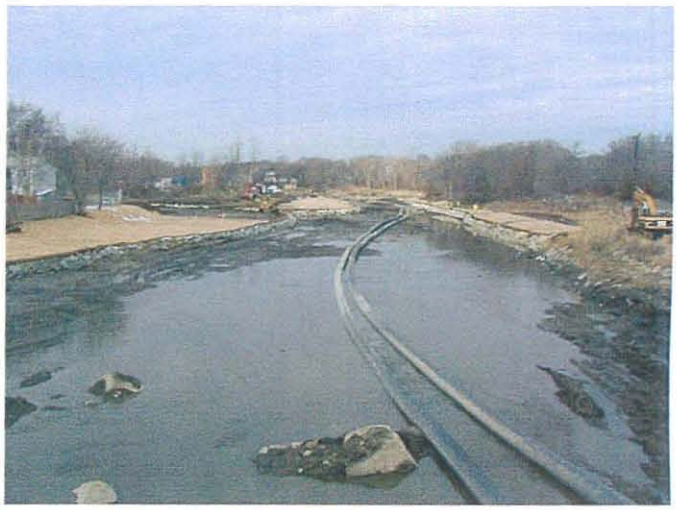
NORTH OF WOOD ST REMEDIATION

Opening of the south berm channel
Photo # WS31501
3/15/03
JPK



Restoration of eastern shoreline N. of Titleist lot
Photo # WS31502
3/15/03
JPK

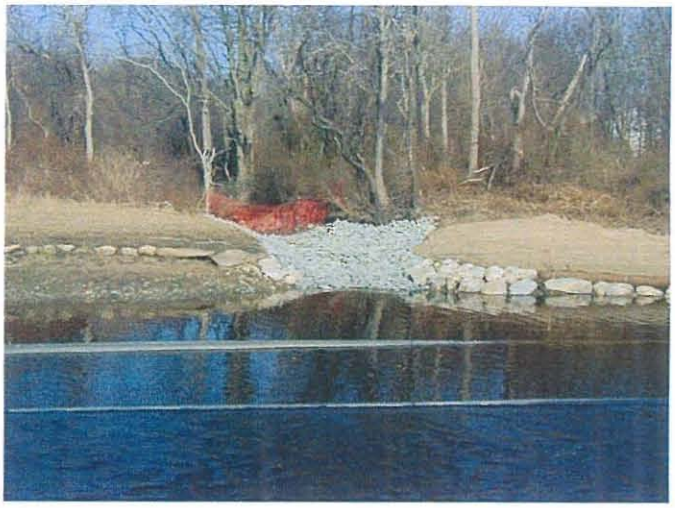
Post-restoration conditions: south zone, western shoreline
Photo # WS31503
3/15/03
JPK



Restoration north of the Wood St. bridge
Photo # WS31504
3/15/03
JPK

NORTH OF WOOD ST REMEDIATION

River flowing through the north berm culvert
Photo # WS31801
3/18/03
JPK

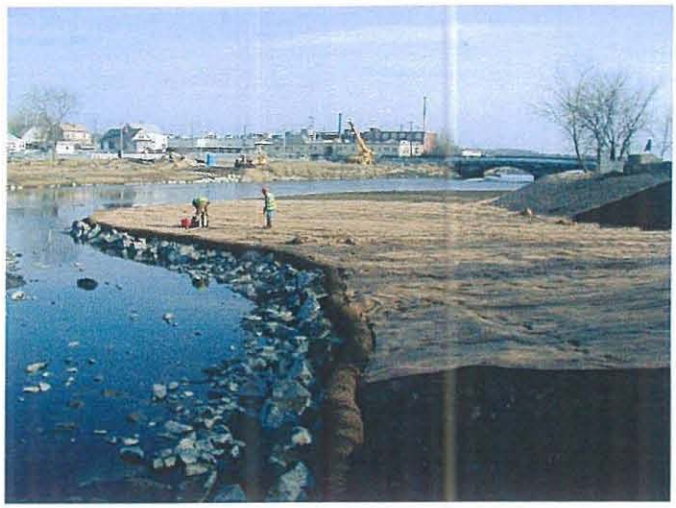


Drainage swale at south end of Braley property
Photo # WS31802
3/18/03
JPK

Restoration activities at the CSO zone
Photo # WS31803
3/18/03
JPK

Restoration activities at the CSO zone
Photo # WS31804
3/18/03
JPK

NORTH OF WOOD ST REMEDIATION



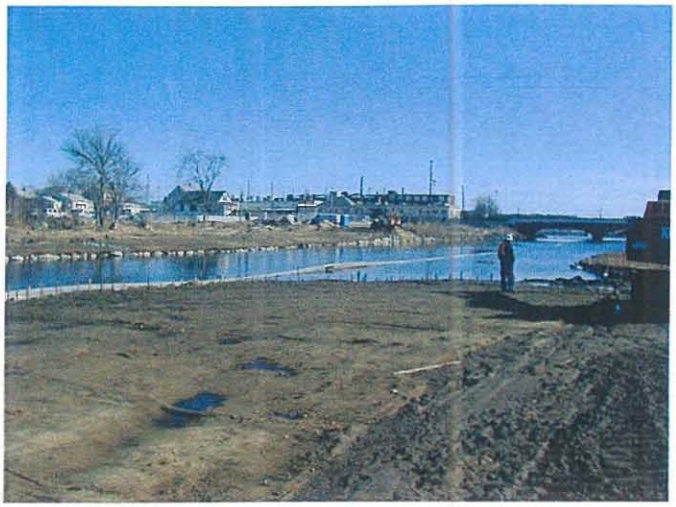
Restoration activities at the CSO zone
Photo # WS31805
3/18/03
JPK

Demobilization of MT equipment from Lumberyard
Photo # WS31901
3/19/03
JPK

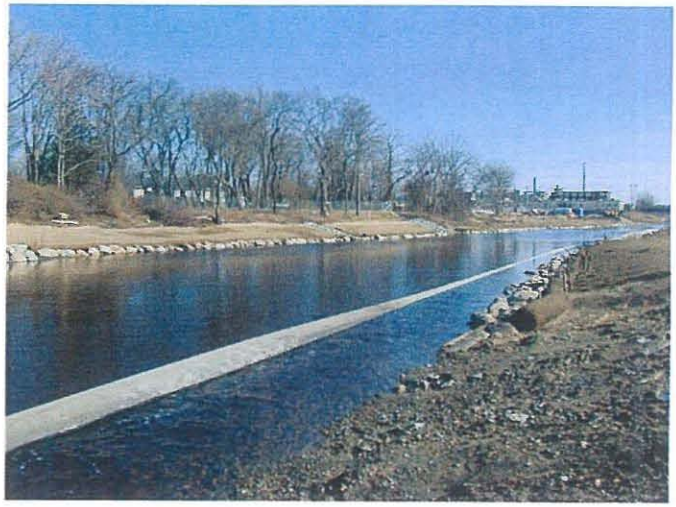
Restoration of the CSO zone
Photo # WS31902
3/19/03
JPK

Restored condition. Note: Water elevation = -0.5ft
Photo # WS31903
3/19/03
JPK

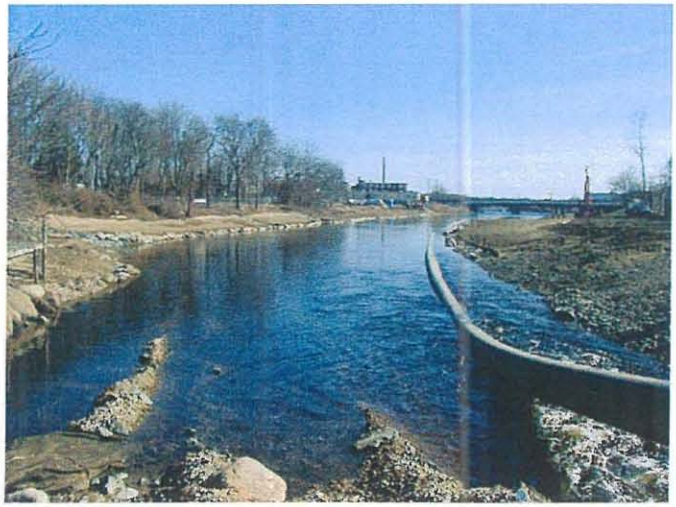
NORTH OF WOOD ST REMEDIATION



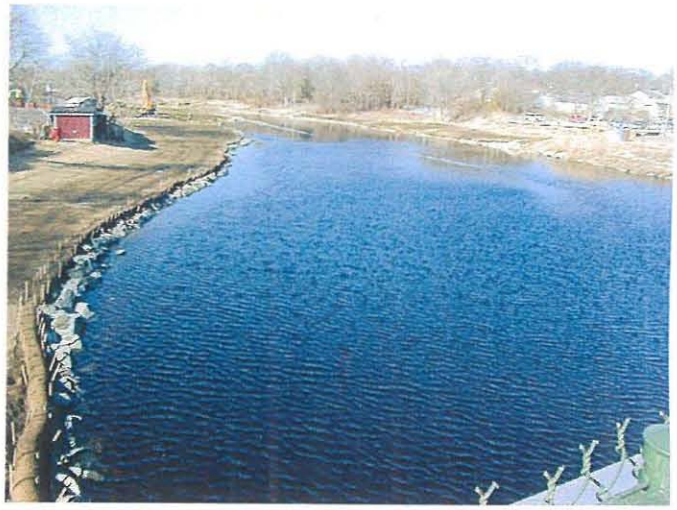
Restored conditions. Note: Water elevation = -0.5ft
Photo # WS31904
3/19/03
JPK



Restored conditions. Note: Water elevation = -0.5ft
Photo # WS31905
3/19/03
JPK

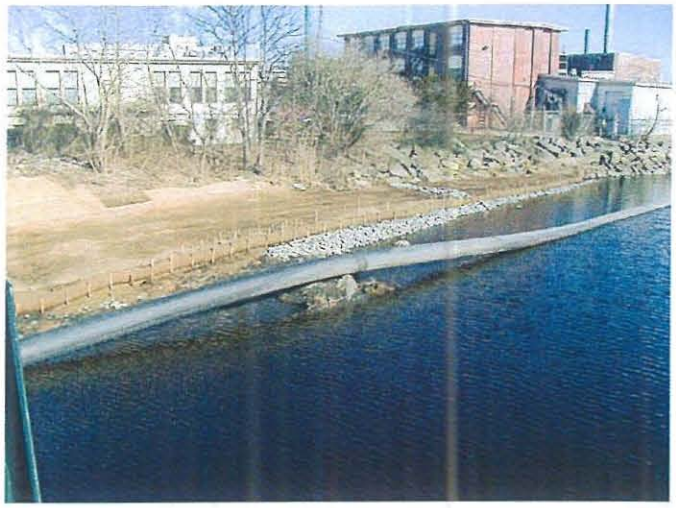


Restored conditions. Note: Water elevation = -0.5ft
Photo # WS31906
3/19/03
JPK



Restored conditions. Note: Water elevation = -0.5ft
Photo # WS31907
3/19/03
JPK

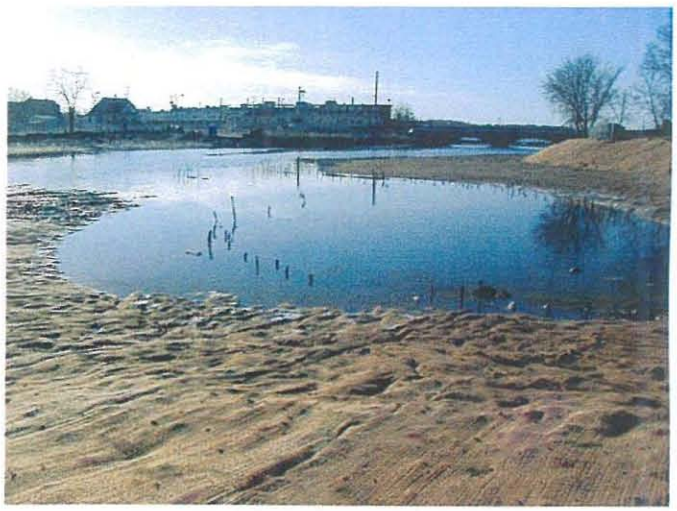
NORTH OF WOOD ST REMEDIATION



Restored condition. Note: Water elevation = -0.5 ft
Photo # WS31908
3/19/03
JPK

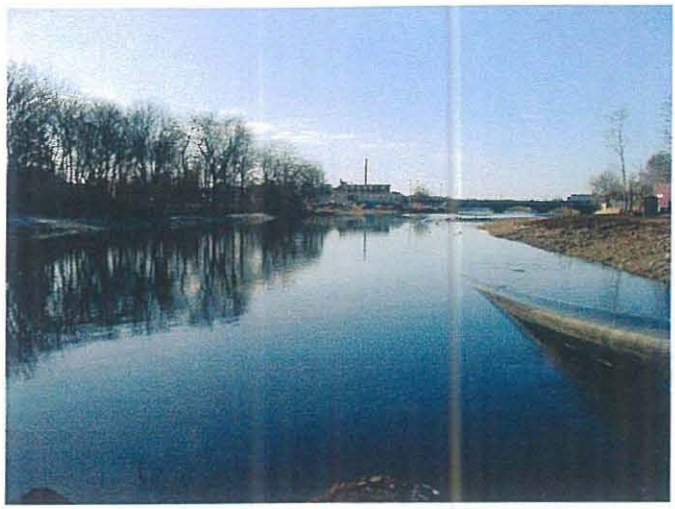
Restored condition. Note: Water elevation = 1.7 ft
Photo # WS32001
3/20/03
JPK

Restored condition. Note: Water elevation = 1.7 ft
Photo # WS32002
3/20/03
JPK



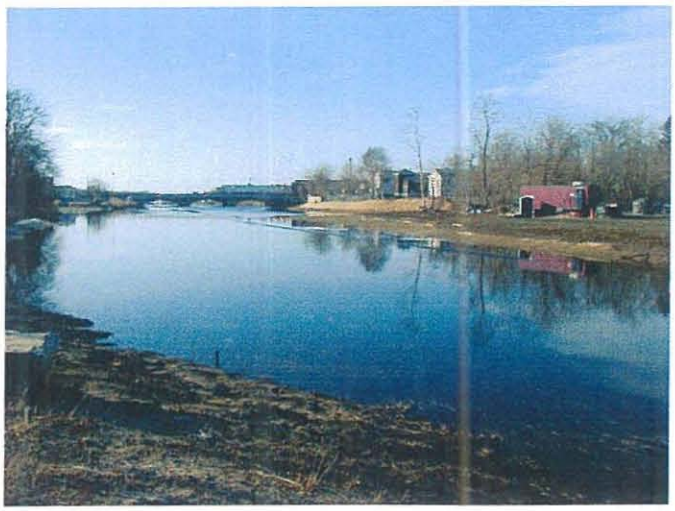
Restored condition. Note: Water elevation = 1.7 ft
Photo # WS32003
3/20/03
JPK

NORTH OF WOOD ST REMEDIATION



Restored condition. Note: Water elevation = 1.7 ft
Photo # WS32004
3/20/03
JPK

Removal of the by-pass piping from river
Photo # WS32005
3/20/03
JPK



Restored condition. Note: Water elevation = 1.7 ft
Photo # WS32006
3/20/03
JPK

Removal of the by-pass piping from river
Photo # WS32007
3/20/03
JPK

NORTH OF WOOD ST REMEDIATION

Restoration activities at the CSO zone
Photo # WS32008
3/20/03
JPK

Site conditions following removal of the north berm
Photo # WS32401
3/24/03
JPK

MT employees securing the coir logs
Photo # WS32402
3/24/03
JPK

Excavation of the Santos' garden
Photo # WS32501
3/25/03
JPK

NORTH OF WOOD ST REMEDIATION

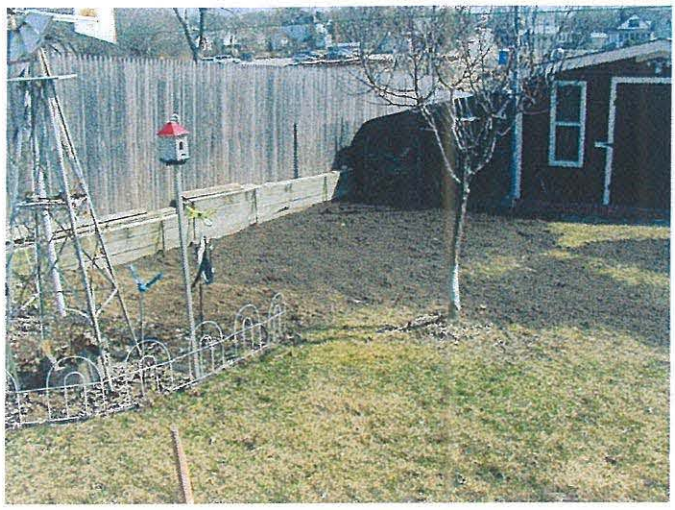
Excavation of the Santos' garden
Photo # WS32502
3/25/03
JPK

Restored slope at the lumberyard zone (west shore)
Photo # WS32701
3/27/03
JPK

Braley dock re-installed
Photo # WS32702
3/27/03
JPK

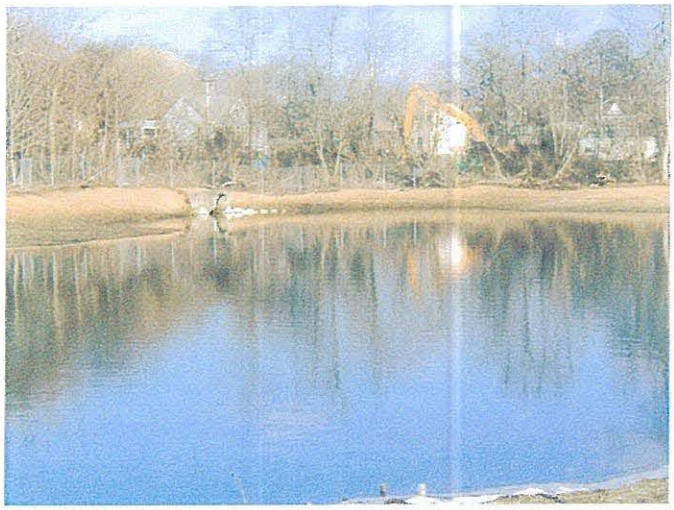
Trash/debris at lumberyard zone (west shore)
Photo # WS32703
3/27/03
JPK

NORTH OF WOOD ST REMEDIATION

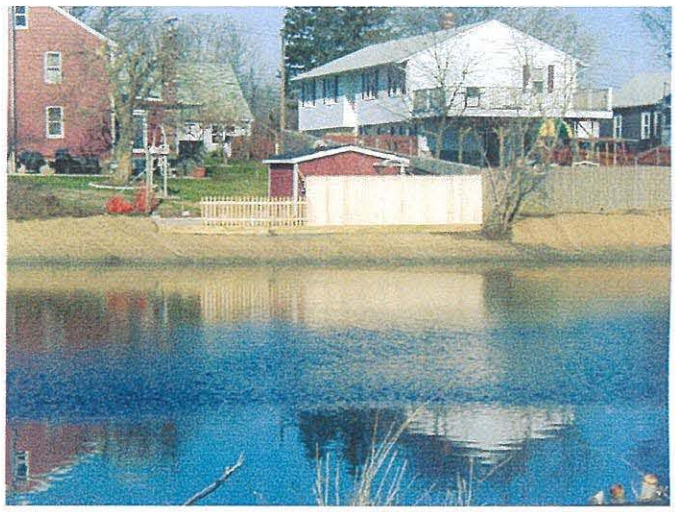


Santos' garden backfilled with topsoil
Photo # WS32704
3/27/03
JPK

CSO outlet near high tide
Photo # WS40101
4/01/03
JPK



CSO outlet near high tide
Photo # WS40102
4/01/03
JPK



Santos' shed - post remediation conditions
Photo # WS40103
4/01/03
JPK

NORTH OF WOOD ST REMEDIATION

Construction of drainage swale north of Tieleist lot
Photo # WS40701
4/07/03
JPK

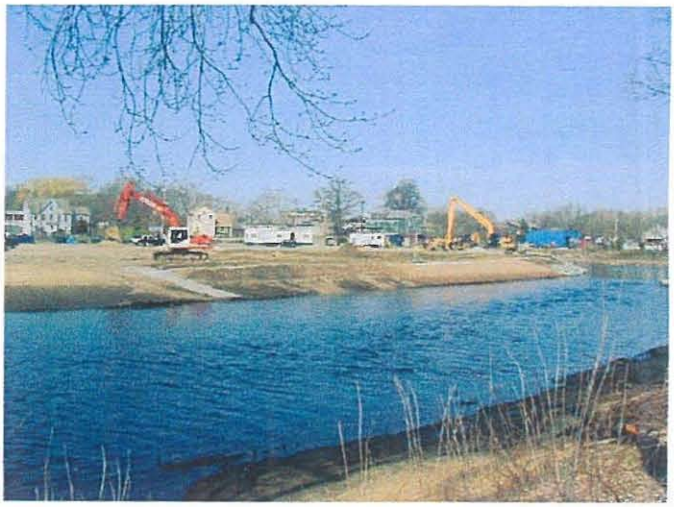
Drainage swale on west shore north of bridge
Photo # WS40901
4/09/03
JPK

Construction of drainage swale north of bridge/lot grading
Photo # WS40902
4/09/03
JPK

Construction of drainage swale north of bridge/lot grading
Photo # WS40903
4/09/03
JPK

NORTH OF WOOD ST REMEDIATION

Drainage swale north of the Titleist parking lot
Photo # WS40904
4/09/03
JPK

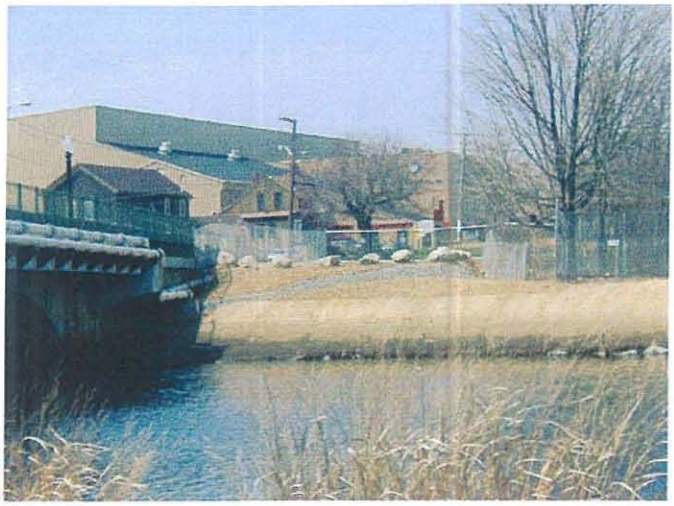


Installation of drainage swale at Lumberyard
Photo # WS41401
4/14/03
JPK

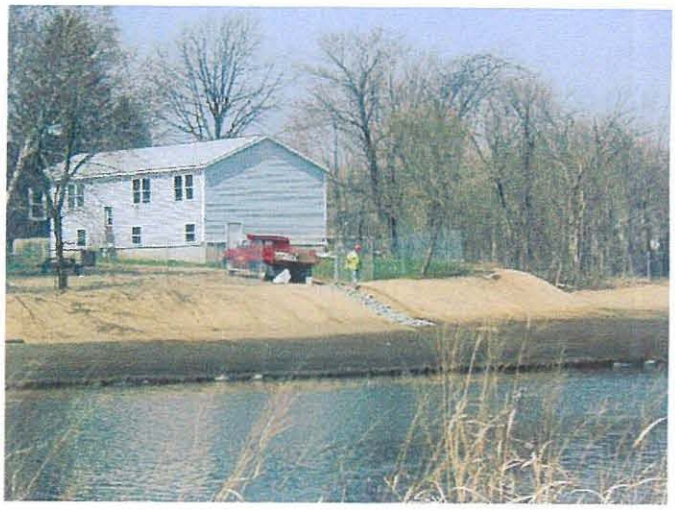
Installation of drainage swale/final grading at Lumberyard
Photo # WS41501
4/15/03
JPK

Installation of drainage swale/final grading at Lumberyard
Photo # WS41502
4/15/03
JPK

NORTH OF WOOD ST REMEDIATION



Drainage swale/stone protection at Wood St. access
Photo # WS41601
4/16/03
JPK

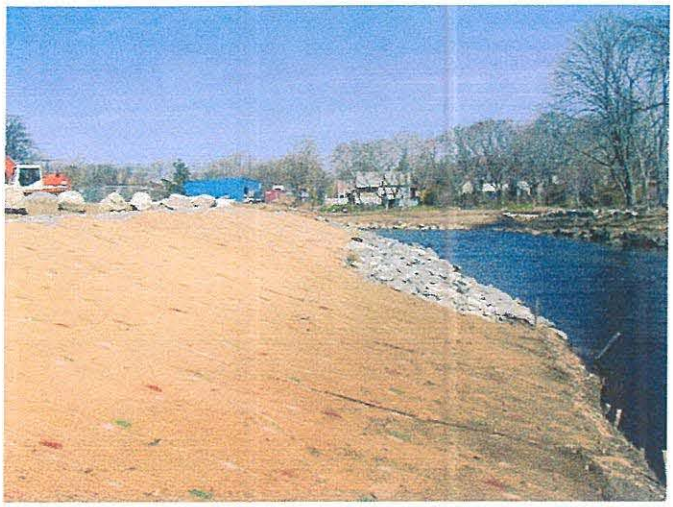


Drainage swale construction behind residences (W. shore)
Photo # WS41602
4/16/03
JPK

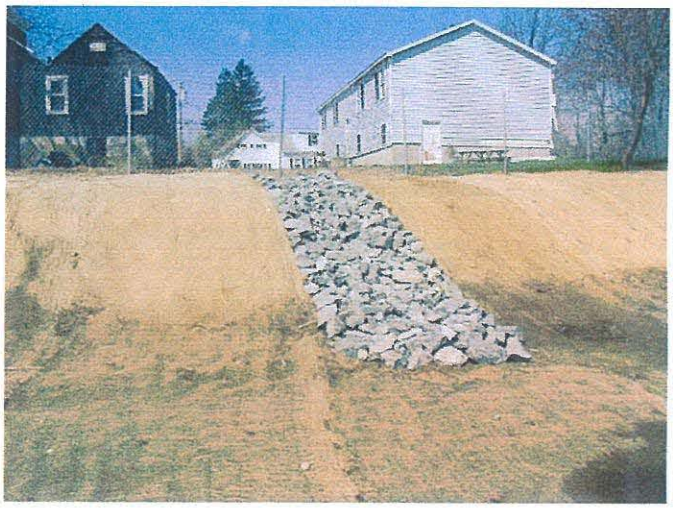
Stone protection at the Lumberyard
Photo # WS41701
4/17/03
JPK

Drainage swale/restored slope at Lumberyard
Photo # WS42501
4/25/03
JPK

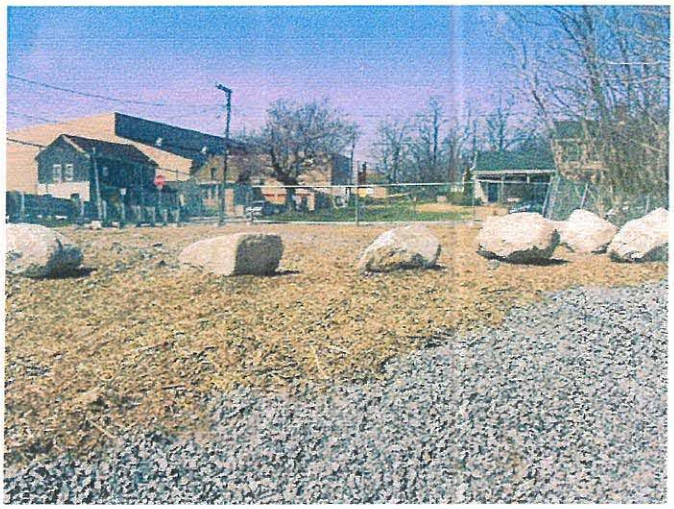
NORTH OF WOOD ST REMEDIATION



Restored slope at Lumberyard
Photo # WS42502
4/25/03
JPK



Drainage swale on W. shore, behind residences
Photo # WS42503
4/25/03
JPK



Restored conditions at Drs. lot
Photo # WS42504
4/25/03
JPK

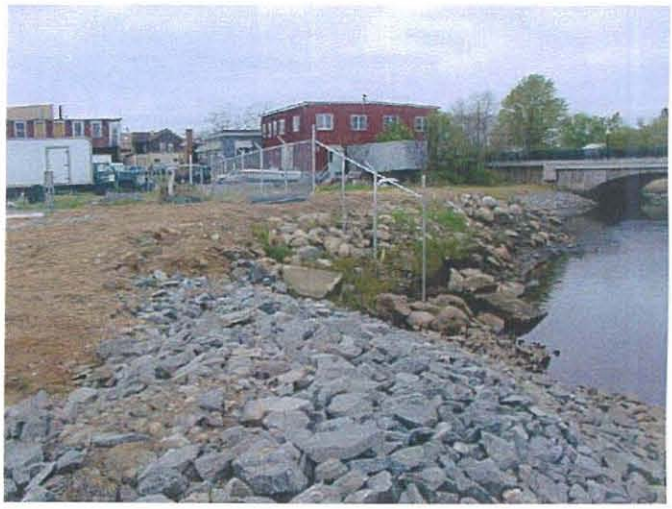
MT grading the Debris Disposal Area (DDA)
Photo # WS42901
4/29/03
JPK

NORTH OF WOOD ST REMEDIATION

MT grading the Debris Disposal Area (DDA)
Photo # WS42902
4/29/03
JPK

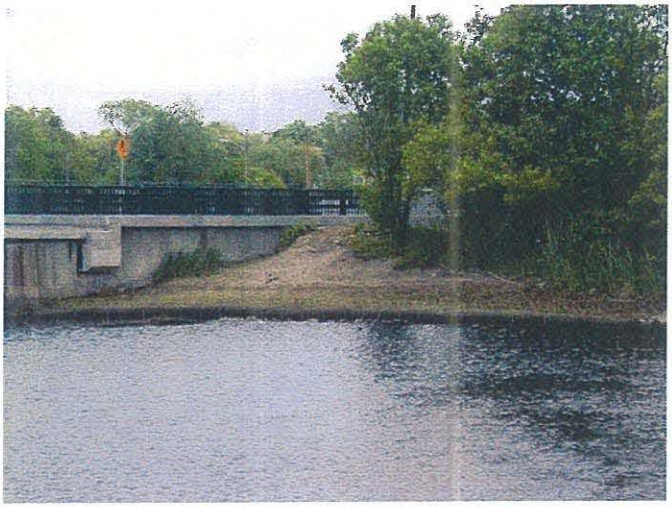
MT grading the Debris Disposal Area (DDA)
Photo # WS42903
4/29/03
JPK

Installation of fencing at South Bern
Photo # WS51601
5/16/03
JPK



Installation of fencing at South Bern
Photo # WS51602
5/16/03
JPK

NORTH OF WOOD ST REMEDIATION



Wetlands plants south of Wood St. bridge-eastern shore
Photo # WS61101
6/11/03
AC

Wetlands plants north of Wood St. bridge-facing south
Photo # WS61102
6/11/03
AC

Wetlands plants north of Wood St. bridge-facing north
Photo # WS61103
6/11/03
AC

Planting tool
Photo # WS61104
6/11/03
AC

NORTH OF WOOD ST REMEDIATION

Planting tool
Photo # WS61105
6/11/03

Planting upper marsh plants
Photo # WS61106
6/11/03

Upper marsh plants delivered to site
Photo # WS61107
6/11/03

CSO area south
Photo # WS61108
6/11/03

NORTH OF WOOD ST REMEDIATION

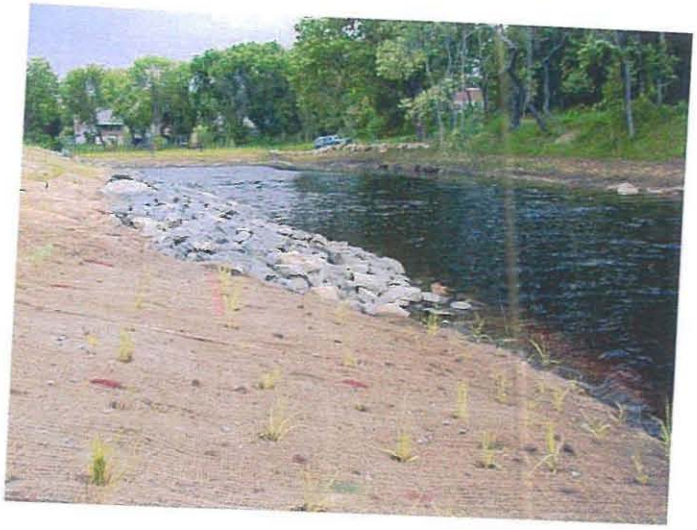
Fallen tree on fence at CSO
Photo # WS61109
6/11/03

West bank looking south at CSO
Photo # WS61110
6/11/03

Goose in plantings
Photo # WS61112
6/11/03

Wetland planting in lumberyard area
Photo # WS61113
6/11/03

NORTH OF WOOD ST REMEDIATION



Northern limit of planting on west bank
Photo # WS61114
6/11/03

New planting near lumberyard zone
Photo # WS62001
6/20/03

East bank near Acushnet Park
Photo # WS62002
6/20/03

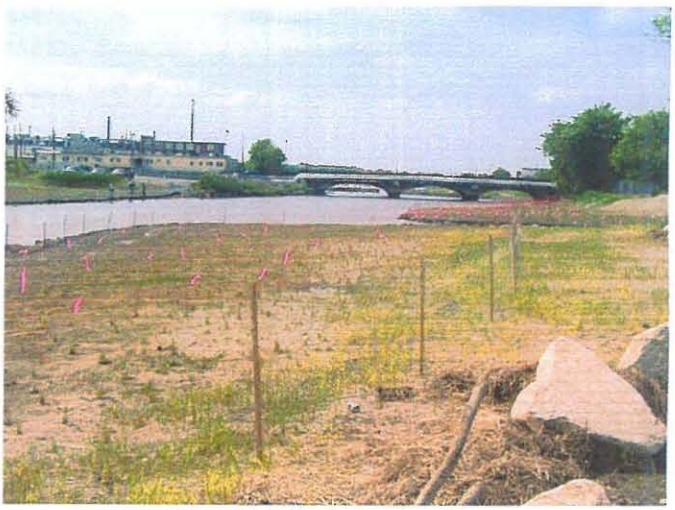
Future shrub placement near Acushnet Park
Photo # WS62003
6/20/03

NORTH OF WOOD ST REMEDIATION

Future shrub placement near Acushnet Park
Photo # WS62004
6/20/03

Goose fencing
Photo # WS62005
6/20/03

Goose fencing and deterrent
Photo # WS62006
6/20/03



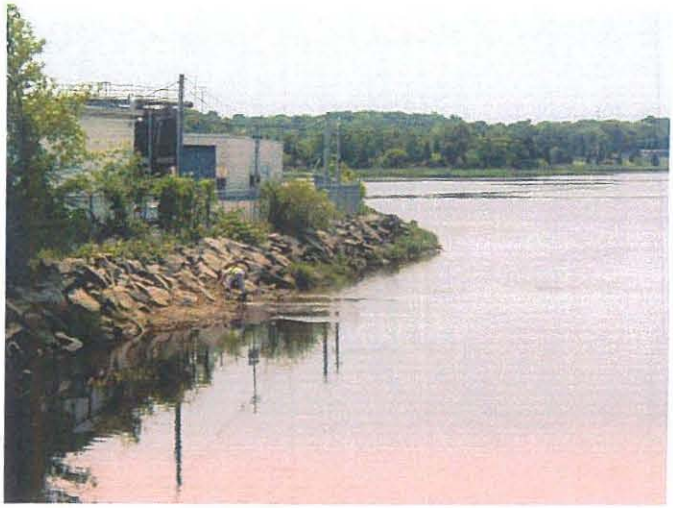
Phase II restoration facing south
Photo # WS62007
6/20/03

NORTH OF WOOD ST REMEDIATION

CSO area facing south
Photo # WS62008
6/20/03

South berm removal
Photo # WS62401
6/24/03

South berm removal
Photo # WS62403
6/24/03



Clearing rip rap wall at south berm
Photo # WS62404
6/24/03

NORTH OF WOOD ST REMEDIATION

Cleaning rip rap wall at south berm
Photo # WS62405
6/24/03

South berm removal
Photo # WS62406
6/24/03

U-channel loaded on Town of Acushnet trucks
Photo # WS62501
6/25/03

East bank at Titleist
Photo # WS62502
6/25/03

NORTH OF WOOD ST REMEDIATION

Cleaning out U-channel
Photo # WS62503
6/25/03

Looking north and into CSO area from bridge
Photo # WS090801
9/8/03

Looking towards Acushnet (east) from bridge
Photo # WS090802
9/8/03

Looking north from bridge
Photo # WS090803
9/8/03

NORTH OF WOOD ST REMEDIATION

Southeast side near Titleist from bridge
Photo # WS090804
9/8/03

North from Titleist parking area
Photo # WS090805
9/8/03

West behind residence from Titleist parking area
Photo # WS090806
9/8/03

NORTH OF WOOD STREET REMEDIATION

Removal of HDPE mats south of excavation at Acushnet Park
Photo # NWS121201
12/12/03
MS

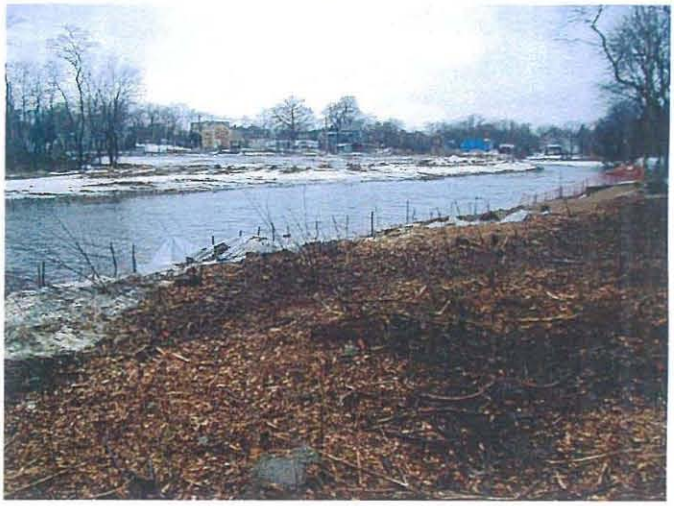
Removal of HDPE mats south of excavation at Acushnet Park
Photo # NWS121202
12/12/03
MS

Restoration of the excavation at the Acushnet Park
Photo # NWS121203
12/12/03
MS

Restoration of the excavation at the Acushnet Park
Photo # NWS121204
12/12/03
MS

NORTH OF WOOD STREET REMEDIATION

Area south of excavation at Acushnet Park
Photo # NWS121205
12/12/03
MS



Area south of excavation at Acushnet Park
Photo # NWS121206
12/12/03
MS

North of Wood St. After Action Report
Consolidated Response to Comments

Response to Comments From C. Turek, USACE Project Engineer, Dated October 4, 2005.

Below are my comments on the Revised Draft Closeout Report for the subject project, dated February 13, 2004.

1. Table of Contents, List of Tables: Add a Table of Excavated Quantities (Design vs. Actual, per CDA unit). (This was previously stated; refer to my memo to Mr. Beaudoin dated 2/10/04 – Comment #2.) This table should also be referred to in Section 3.6.

   A table showing approximated excavated quantities by CDA unit was added in Section 1.3 and referenced in Section 3.6.

2. Table of Contents, List of Appendices: List the 4 Figures under Appendix C.

   Change made as noted.

3. Page 1-1, 5th para., 1st sent.: Change "15,439" to "15,433" and change "April" to "March".

   Change made as noted.

4. Page 1-11, Table 1-2: Do not split the table up between pages. Remove the comma after the northing coordinate for AQ Site 37.

   Correction made as noted.

5. Page 3-1, sect 3.1, General: The following items will refer to a Photo Id No. which is to be inserted at the end of the item (unless otherwise stipulated) as such: "Refer to Photo #WSxxxxxxx in the Photo Log (Appendix M).".

   Reference to photograph as indicated by USACE is included in After Action Report. All USACE indicated photographs have been included in Appendix M.

6. Page 3-1, sect 3.1, Item 1: 102102, 102103, 102401 & 102402.

   Reference to photographs has been added.

7. Page 3-1, sect 3.1, Item 3: 110501.

Reference to photographs has been added.

8. Page 3-1, sect. 3.1, Item 4: 111903.

Reference to photographs has been added.

9. Page 3-1, sect. 3.1, Item 5: 110503 through 110506.

Reference to photographs has been added.

10. Page 3-1, sect. 3.1, Item 6: 111901, 111902, 112001 & 112101.

Reference to photographs has been added.

11. Page 3-1, sect. 3.1, Item 7: 110701, 110702 & 111503.

Reference to photographs has been added.

12. Page 3-1, sect. 3.1, Item 8: 1st bullet – 120202, 2nd bullet – 112103, 3rd bullet – 121101, 4th bullet – 120301, 5th bullet – 121201 & 121301, 6th bullet – 120201 & 122410.

Reference to photographs has been added.

13. Page 3-1, sect. 3.1, Item 9: 103003.

Reference to photographs has been added.

14. Page 3-1, sect. 3.1., Item 12: 103005.

Reference to photographs has been added.

15. Page 3-2, sect. 3.1, Item 13: 120202, 120203, 1904 & 1905.

Reference to photographs has been added.

16. Page 3-2, sect. 3.1, Item 14: 122303.

Reference to photographs has been added.

17. Page 3-2, sect. 3.1, Item 15: 1601 & 1602.

Reference to photographs has been added.

18. Page 3-2, sect. 3.1, Item 16: 122303.

Reference to photographs has been added.

19. Page 3-2, sect. 3.1, Item 17: end of 1st sentence – 122802, end of item – 122410.

Reference to photographs has been added.

20. Page 3-2, sect. 3.1, Item 18: 1806.

Reference to photographs has been added.

21. Page 3-2, sect. 3.1, Item 19: 12106, 2303, 2502 & 21003.

Reference to photographs has been added.

22. Page 3-2, sect. 3.1, Item 20: 11503.

Reference to photographs has been added.

23. Page 3-2, sect. 3.1, Item 21: 1805 & 11305.

Reference to photographs has been added.

24. Page 3-2, sect. 3.1, Item 22: 11303, 12107, 12903, 22006 & 22008 .

Reference to photographs has been added.

25. Page 3-2, sect. 3.1, Item 23: end of 1st sentence – 11502, end of 2nd sentence – 123002, end of item – 12102.

Reference to photographs has been added.

26. Page 3-2, sect. 3.1, Item 24: 12304, 12901 & 2301.

Reference to photographs has been added.

27. Page 3-2, sect. 3.1, Item 25: Make a subparagraph within Item 25 from the 5th sentence to the end. Change "results" to "result" in the 6th sentence. After the last sentence, add "(Refer to Appendix C, Figure 1.)".

Changes made as noted.

28. Page 3-2, sect. 3.1, Item 26: 30105

Reference to photographs has been added.

29. Page 3-2, sect. 3.1, Item 27: 30104.

Reference to photographs has been added.

30. Page 3-3, sect. 3.1, Item 28: 31104 & 31105.

Reference to photographs has been added.

31. Page 3-3, sect. 3.1, Item 29: 31203, 31204 & 31207.

Reference to photographs has been added.

32. Page 3-3, sect. 3.1, Item 30: 31503.

Reference to photographs has been added.

33. Page 3-3, sect. 3.1, Item 31: 31801.

Reference to photographs has been added.

34. Page 3-3, sect. 3.1, Item 32: 31801.

Reference to photographs has been added.

35. Page 3-3, sect. 3.1, Item 33: 31804, 31805, 31904, 31905 & 31907.

Reference to photographs has been added.

36. Page 3-3, sect. 3.1, Item 34: 32401.

Reference to photographs has been added.

37. Page 3-3, sect. 3.1, Item 36: 32005 & 32007.

Reference to photographs has been added.

38. Page 3-3, sect. 3.1, Item 37: 42902 & 42903.

Reference to photographs has been added.

39. Page 3-3, sect. 3.1, Item 39: 61102, 61103 & 61104.
Reference to photographs has been added.

40. Page 3-3, sect. 3.1, Item 40: 62401, 62403, 62404 & 62405.

Reference to photographs has been added.

41. Page 3-3, sect. 3.1, Item 43: 121201, 121202, 121203 & 121204.

Reference to photographs has been added.

42. Page 3-5, sect 3.6, 1st sent.: Change "Actual" to "Design". After the 1st sentence, add "Deviations from the design excavation depths are shown in Appendix G."

Changes made as noted.

43. Page 3-6, sect. 3.6.3, last sent.: Change "December 12" to "December 15".

Changes made as noted.

44. Page 3-8, sect. 3.8.2: Reverse the fifth & sixth bullets and the seventh & eighth bullets.

Changes made as noted.

45. Page 6-1: The Pre-Final Inspection was held on May 5, 2003. The Final Inspection was held on March 10, 2004.

There appears to have been two final inspections. After discussions with C. Turek, it was agreed to say that the last final inspection was performed o March 10, 2004.

46. Page 8-1, sect. 8.1, 1st sent.: Appendix J should be updated after the incorporation of these comments and subsequent revision of the Closeout Report.

April 1, 2005 cost report has been included in Appendix J and the cost values in Section 8 have been updated to reflect the updated costs.

47. Page 8-1, sect. 8.1, 2nd sent.: State why the budget was adjusted downward in December 2003. Include that $6,920,152 was the negotiated contract amount.

Text has been changed to state that the original negotiated amount was $6,920,152 but that in December 2003 this budget was adjusted downward to $6,783,610 based on subsequent negotiations with the USACE on field change notices.

48. Page 8-1, sect. 8.1, 3rd sent.: Revise the final actual costs amount, as per Comment #46.

Updated as per April 1, 2005 cost report and final AAR will be updated with final AAR costs.

49. Page 8-3, Subtask 21.06: See Comment #s 46 & 48. Use consistent title for the subject report.

Report is called "After Action Report" and is consistent throughout.

50. Page 9-2, sect. 9.7, 1st sent.: Change "still protecting the fish" to "not adversely impacting the spring fish migration".

Changes made as noted.

51. Page 9-2, sect. 9.7, 2nd sent.: Delete the entire sentence. Add the following, "The opening of the river was successfully delayed from March 1st to March 15th, which allowed work to be completed in the dry. Monitoring of the water temperatures was performed to prepare for possible river opening if temperatures approached 4C, as required by the MADMF.".

Changes made as noted.

52. Page 9-2: Add a section describing the FW delay in issuing NTP which resulted in a shortened schedule, requiring the Government to incur overtime costs to complete the project in the dry before the spring fish migration.

This was previously stated; refer to my memo to Mr. Beaudoin dated 2/10/04 – Comment #84. FW has objected to incorporating this item, citing only the events which occurred prior to contract award. FW should either offer a chronology of events from contract award to FW until NTP from FW to Maxymillian Technologies, Inc., including a discussion of MT's original schedule to support FW's objection, or they should include the item, as described.

In order to give an NTP a signed subcontract needs to be in place which can only be done after the USACE provides consent to award the subcontract and a consent for subcontract award can only be submitted after a task order funding modification is received for the specific task. TtFW received a signed Task Order funding modification from the USACE on Friday September 13, 2002. A request for consent to award the subcontract to Maxymillian Technologies was submitted to the USACE on Monday September 16, 2002. Consent for award was received from the USACE on Tuesday September 24, 2002. Maxymillian commenced work on the required submittals on Thursday September 26, 2003 and a construction planning meeting between TtFW and Maxymillian was conducted on Wednesday October 2, 2002

In the original TtFW request for proposal for this work dated August 1, 2002, the statement of work indicated that contract award would be by August 23, 2002 and NTP by August 26, 2002. There were several amendments during the bidding process that extended the bid due date to August 26, 2002. Maxymillian in their proposal dated August 26, 2002, assumed Contract Award on August 30 and the NTP to September 3, 2003, and priced their bid accordingly.

The September 23, 2002 4-week look ahead schedule (i.e., the week TtFW received consent to award a subcontract to Maxymillian) indicates the start of North of Wood St. Preliminary Work (i.e. field mobilization) was scheduled for October 14, 2002 following preparation and acceptance of submittals. The October 21, 2002 4-week look ahead schedule has an actualized mobilization date as October 21, 2002, which is only one week later than anticipated when the consent to award was received. It should also be noted that the weekly teleconference minutes and 4-week look ahead schedules during that timeframe indicate that the submittal process for the start of excavation started on September 24, 2002, right after the consent to award was received and in parallel with completing the subcontract and providing an official notice to proceed. In addition, Maxymillian's progress schedules show NTP as September 26, 2002.

In summary, based on project events and issues pertaining to planning and cost negotiations leading up to the USACE Consent to award, it was not possible to give Maxymillian an NTP as they originally priced scheduled and priced in their proposal (September 3, 2003). By the time the task order modification had been received, consent to award a subcontract had been completed (September 24, 2002), several weeks had passed which in combination with the inclement weather caused delay in completing the project before severe winter weather conditions set in which eventually required the use of overtime to complete the project in the "dry" before the spring fish migration.

53. Page 10-1: Add Maurice Beaudoin as C.O.R. to the list of USACE contacts.

Name was added as indicated.

54. General: Include all revised and approved appendices. Consult with me if you are unsure, as I have the set in my possession.

Appendices have been updated in the updated draft AAR.

Response to Comments from C. Turek, USACE Project Engineer dated January 12, 2005.

Below are my comments on the Figures and Appendices submitted with the Revised Draft Closeout Report for the subject project, dated 10/20/04 (2004-024-0356). Note that these Figures and Appendices are to be extracted from the aforementioned report and inserted into the version of the report dated 3/1/04 (2004-024-0125), as previously stated in my E-mail to Mr. George Willant, dated 12/14/04.

1. Figure 1-1: NWS area did not extend upstream of the Early Action Area.

Figure has been revised to show the NWS area ending at the northern portion of the EA Area.

2. Figure 1-3: "Coggeshell" is misspelled.

Figure has been corrected.

3. App. B: Include the signed Eng. Form 4025 indicating approval.

There does not appear to be a signed 4025 form in the file for the Air Sampling Report dated October 2003 in Appendix B. The October 2003 Report is an accumulations of several Air Sampling Reports that were submitted on 4025's over the course of the project, each one being reflective of various sampling events during construction. The October 2003 Report is a compilation of all the interim submittals into one report.

4. App. C, Fig. 2: Delete "Draft – (For Review Information Only)" and use a full size drawing.

Change has been made.

5. App. C, Fig. 3: Same as previous comment.

Change has been made.

6. App. C, Fig. 4: Same as previous comment.

Change has been made.

7. App. E: There is no need for this drawing. It is identical to Figure 1-2.

Appendix and figure has been deleted. Remaining Appendices and text references have been adjusted accordingly.

8. App. F.2: Use a full size drawing.

Full size drawing has been included.

9. App. F.3: Use a full size drawing.

Full size drawing has been included.

10. App. G.1: Use a full size drawing.

Full size drawing has been included.

11. App. G.2: Use a full size drawing.

Full size drawing has been included.

12. App. M: Use the previously submitted entire Photo Log with index dated 4/7/04.

Entire log has been included.